Section Seven—Environmental Element

County growth and development trends present challenges to environmental conservation. The increased use of natural resources, air and water pollution, loss of agriculturally productive lands and decline of open space are examples of development consequences. The impact of development must be balanced to ensure protection of our environment.

The provisions of this element apply countywide. *Growing Smarter Plus* does not require environmental impact statements beyond those already required. Although the environmental element is optional, it has been adopted by the Board and thereby recognized as important to the health, safety and welfare of the community.

This Environmental Element includes analysis, policies and strategies to address any anticipated effects of the plan's elements and new development called for by the plan on air and water quality and natural resources.

The environmental element is composed of eight sections:

- Legislative Requirement
- Purpose
- Environmental Plan
- CAG Recommendations
- Policies and Priorities
- Environmental Actions
- State and Federal Environmental Laws
- Soils Types

7.1 Legislative Requirement

Arizona Revised Statutes specifies that a Comprehensive Plan must have an Environmental Element to address related concerns. Requirements of ARS §11-804 (C)(3). are as follows:

> An environmental planning element that contains analyses, policies and strategies to address anticipated effects, if any, of plan elements on air quality, water quality and natural resources associated with proposed development under the comprehensive plan. The policies and strategies to be developed under this element shall be designed to have countywide applicability and shall not require the production of an additional environmental impact statement or similar analysis beyond the requirements of state and federal law.

7.2 Purpose

The purpose of this Element is to assess and outline strategies to avoid, minimize and mitigate anticipated effects on environmental resources. Specific functions include:

- Ensure compliance with existing State and Federal Environmental Laws, Regulations, and Executive Orders.
- Recognize the ecological and social value of the natural resources within the county and their contribution to tourism, the economy, helping residents maintain a connection to the outdoors, preserving local traditions, and improving the overall quality of life for residents.
- Determine the extent to which development activities are required to comply with the goals, objectives and policies contained within the Plan.
- Promote the sustainable use and conservation of natural resources in the county for continued economic viability.

7.3 Environmental Plan

The Environmental Plan consists of five major categories including:

- Water Quality and Conservation
- Air Quality
- Noise and Light Pollution
- Solid Waste Disposal and Hazardous Materials
- Resources: Natural and Manmade
    - Agriculture
    - Silviculture
    - Cultural
    - Vegetation
    - Wildlife
    - Soils

7.3.a Water Quality and Conservation

The supply of water is a complex issue. Colorado River allocations, irrigation and drainage district water rights and the development of on-site wells are a few of these issues. Some areas of the county have ample water supplies while others experience deficiencies. Recognition of water resource availability and quality is a primary consideration in all land use decisions. Recognition is ensured through legislative mandates and the Major Amendment process to the Plan.

Water resources are discussed in detail in the water resources element of the 2020 Comprehensive Plan.

7.3.b 208 Plan

The Yuma County Water Quality Management Plan (Yuma 208 Plan) establishes strategies and processes to provide regional coordination for development of wastewater treatment facilities and efforts to protect water quality. The Yuma 208 Plan is essentially an agreement between Yuma County, entities operating wastewater utilities within the county, the Arizona Department of Environmental Quality (ADEQ) and the federal Environmental Protection Agency (EPA) about these strategies and processes. It is referred to as the Yuma 208 Plan because it fulfills water quality planning requirements established in Section 208 of the federal Clean Water Act. The purpose of this planning effort is to:

- Assure adequate wastewater facilities in Yuma County.
- Take advantage of economies of scale, treatment efficiencies, new and better treatment technology and conservation practices where possible.
- Identify and address water quality and wastewater issues.
- Improve effectiveness and efficiency of 208 Plan consistency reviews.

The planning effort is designed to encourage and assure the development and maintenance of sufficient, efficient, cost effective, reliable and sustainable wastewater treatment and disposal systems. The 208 Plan includes strategies that encourage the use of resource conservation practices and address water quality problems from sources other than wastewater treatment and disposal.

Several federal and state regulations require that proposed wastewater facilities must be consistent with the Yuma 208 Plan. Wastewater facilities must be in compliance with these regulations; therefore, approval of new or expanding wastewater facilities is contingent on ADEQ determining the proposal is consistent with the 208 Plan.

According to state and federal regulations, the following actions can only be approved if ADEQ determines that the proposal would be consistent with the Yuma 208 Plan (consistency review):

- Build or expand a wastewater facility that discharges to surface water.
- Provide a grant or loan through the Water Infrastructure Finance Authority (WIFA).
- Build or expand a wastewater treatment facility or disposal system with combined flows over 24,000 gallons per day (gpd) or some facilities with flows between 3,000–24,000 gpd.

Regulations do not require 208 consistency reviews for on-site wastewater systems (e.g., septic systems) under 3,000 gpd on-site systems if combined flows would be under 24,000 gpd, collections systems and reclaimed water systems.

Ordinances Need to Fully Implement the Yuma County Water Quality Management Plan

Although federal and state regulations mandate that permits must be consistent with the Yuma County Water Quality Management Plan (208 Plan) and that the plan must address several types of water quality concerns, existing regulations do not provide adequate authority to implement some aspects of this plan. Thus additional ordinances adopted by Yuma County are needed to fully implement the 208 Plan. The Yuma County 208 Plan identifies the following areas as needing the adoption of an ordinance.

Designated Management Agencies and Wastewater Management Utilities

Ordinances are needed to require a municipality to be approved as a designated management agency or for a privately-owned wastewater utility to be designated as a wastewater management utility (WMU) and require that they take on the responsibilities of a designated management agency or WMU outlined in this plan. Ordinances should indicate that these requirements must be met before approval of new or expanding wastewater facilities. Additional policies and procedures should be considered for coordinating approval of a WMU.

Rescinding Capacity Assurance

Currently, once wastewater treatment capacity assurance is given there is no way for such an assurance to be revoked. This has created problems when developments that have received capacity assurance fail to develop. Tying up allocated treatment capacity can force a treatment plant to operate below its capacity. Local legal authority and processes are needed for a municipality in Yuma County to rescind capacity assurance once given to a developer. State regulations require capacity assurance to be given; without clarification, the assurance is assumed by ADEQ to be an everlasting contract with the developer. There needs to be a mechanism to revoke such an assurance once it is evident that is not going to be used.

Wastewater Treatment Options Table

Additional local ordinances are needed requiring that on-site wastewater treatment facilities (e.g., septic systems and alternative systems with combined flows less than 24,000 gallons per day covered under APP General Permits and wastewater treatment collection systems) are consistent with the 208 Plan and the Wastewater Options Table that is contained within the 208 Plan.

Wastewater Master Plans

An ordinance is needed requiring development and adoption of wastewater master plans before approval of the new or expanding wastewater facilities when the wastewater entity would be functioning as a designated management agency or wastewater management utility. Wastewater master plans include details such as constructed capacity, operational flow, capacity assurance promised to developers, capacity assurance remaining, service area and planning area boundaries, sewer lines and collection systems.

Proposal Submission Requests

An ordinance is needed requiring wastewater treatment facility proposals to include additional information (e.g., such as the cost-effectiveness, resource conservation strategies, treatment efficiencies or economies of scale).

Impacts to Impaired Waters

An ordinance is needed requiring Yuma County to consider (during the permit review process) potential pollutant contributions to surface waters with total maximum daily loads (TMDL) or assessed by ADEQ as an “impaired” or “not attaining” standards, and contributions to an aquifer with wells that exceed Aquifer Water Quality Standards (e.g., nitrate standards or E. coli bacteria standards)

7.3.c Air Quality

Air pollution can cause human respiratory problems and a decrease in agricultural crop productivity. Increased levels of air pollution throughout the county result in health problems such as asthma, tuberculosis and valley fever. The principal sources of air pollutants are industrial releases, agricultural operations, crop burning, aircraft, ground transportation vehicles and proximity to the collective air basin adjacent to Mexico according to the Yuma Metropolitan Planning Organization (YMPO) regional transportation plan.

Point source air pollution is regulated by the United States Environmental Protection Agency (EPA) and the Arizona Department of Environmental Quality (ADEQ). A portion of Yuma County is currently designated as a non-attainment area, although a request for redesignation to attainment status was submitted to EPA on August 16, 2006 and is pending approval (Refer to Map 1).

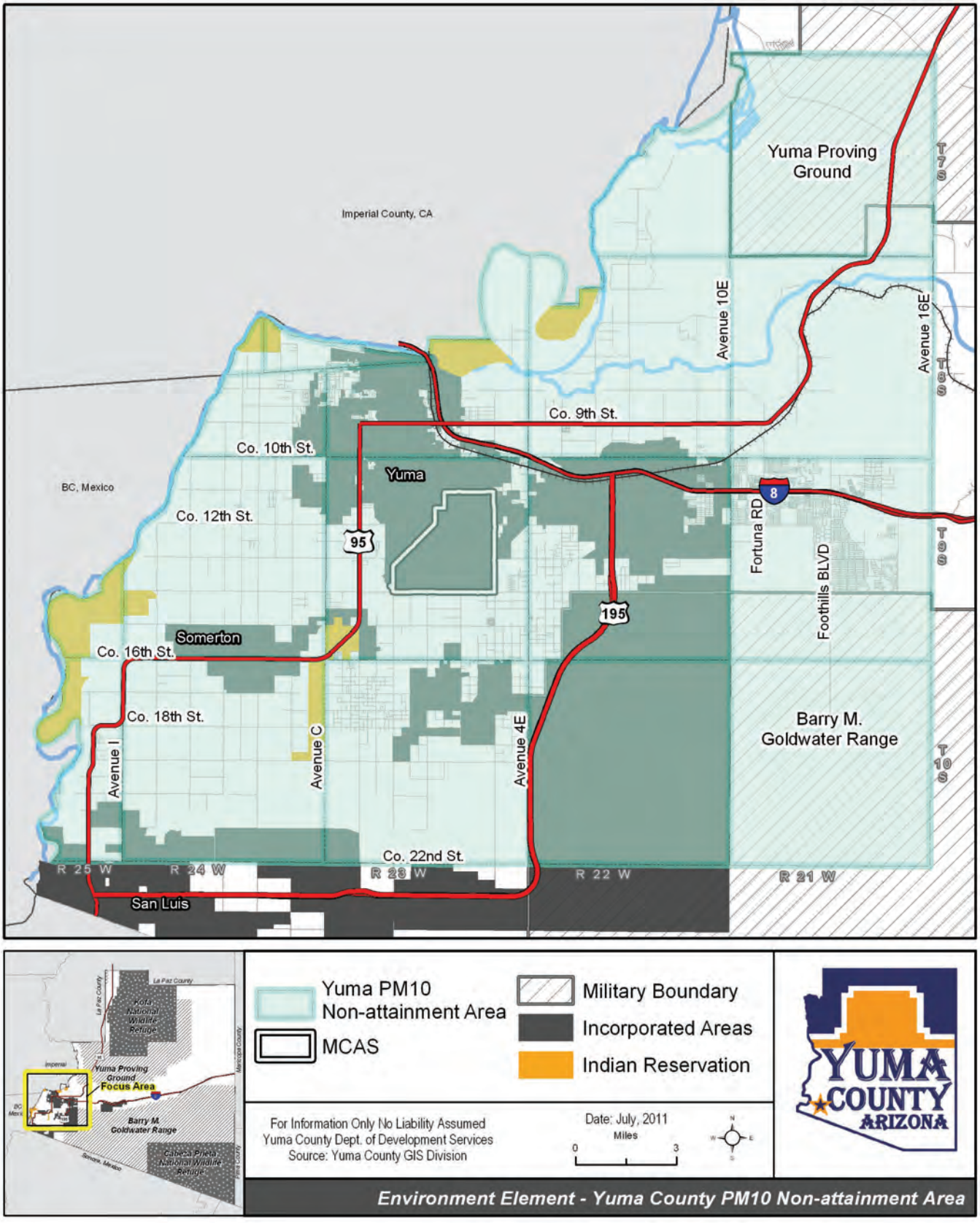
A non-attainment area is a geographic area in which the level of air pollutant is higher than the level allowed by federal standards. A single geographic area may have acceptable levels of one criteria air pollutant but unacceptable levels of one or more other criteria air pollutants; thus, an area can be both attainment and non-attainment at the same time. If an area is in non-attainment, a plan would need to be developed to ensure compliance with the Clean Air Act.

The *Yuma PM-10 Non-attainment Area State Implementation Plan* (SIP) was utilized to reduce the amount of air pollution generated within the Yuma Metropolitan Air Pollution District (YMAPD) non-attainment area. A violation occurred in Yuma on August 18, 2002 caused by large thunderstorms that developed in Mexico with high winds that elevated concentrations of *PM-10* in Yuma County. This was the first violation in more than 10 years. The Yuma community and ADEQ developed a Natural Event Action Plan (NEAP) to prevent this and future natural events from causing the area to remain designated non-attainment.

Programs to require paved roads and parking lots in association with new development will address significant air quality concerns associated with particulate matter. Land use planning that encourages mixed use and planned development may result in fewer automobile trips which will reduce vehicle emissions. Circulation Element policies to encourage walking, bicycling and transit use also can result in lower automobile emissions.

7.3.d Noise Pollution

Noise is a source of pollution that can be a public health hazard. Its effects on humans and wildlife can include various physical and psychological impacts. Public complaints concerning noise levels have paralleled county growth. Residential areas, schools, libraries, hospitals, assisted living facilities and recreational areas are all noise sensitive. Implementation of noise control by isolation or suppression and shielding should be considered in planning for new developments.


Yuma Proving Ground
Imperial County, CA
Avenue 10E
Avenue 16E
T7S
T8S
T9S
T10S
Co. 9th St.
Co. 10th St.
Yuma
BC, Mexico
Co. 12th St.
95
8
Fortuna RD
Foothills BLVD
195
Somerton
Co. 16th St.
Co. 18th St.
Avenue I
Avenue C
Avenue 4E
Barry M. Goldwater Range
Co. 22nd St.
R 25 W
R 24 W
R 23 W
R 22 W
R 21 W
San Luis
Yuma PM10 Non-attainment Area
MCAS
Military Boundary
Incorporated Areas
Indian Reservation
Focus Area
For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division
Date: July, 2011
Miles
0
3
YUMA COUNTY ARIZONA
Environment Element - Yuma County PM10 Non-attainment Area

Map 1

7.3.e Light Pollution

Light pollution can be eliminated by conserving energy, reducing glare and light trespass. Light pollution obscures the stars in the night sky, disrupts ecosystems and has an adverse health effects. The method for best reducing light pollution depends on exactly what the problem is in any given instance. Possible solutions include:

- Improve light fixtures, so that they direct their light more accurately towards where it is needed
- Utilizing light sources of minimum intensity necessary to accomplish the light's purpose
- Turning lights off using a timer or occupancy sensor or manually when not needed

7.3.f Solid Waste Disposal

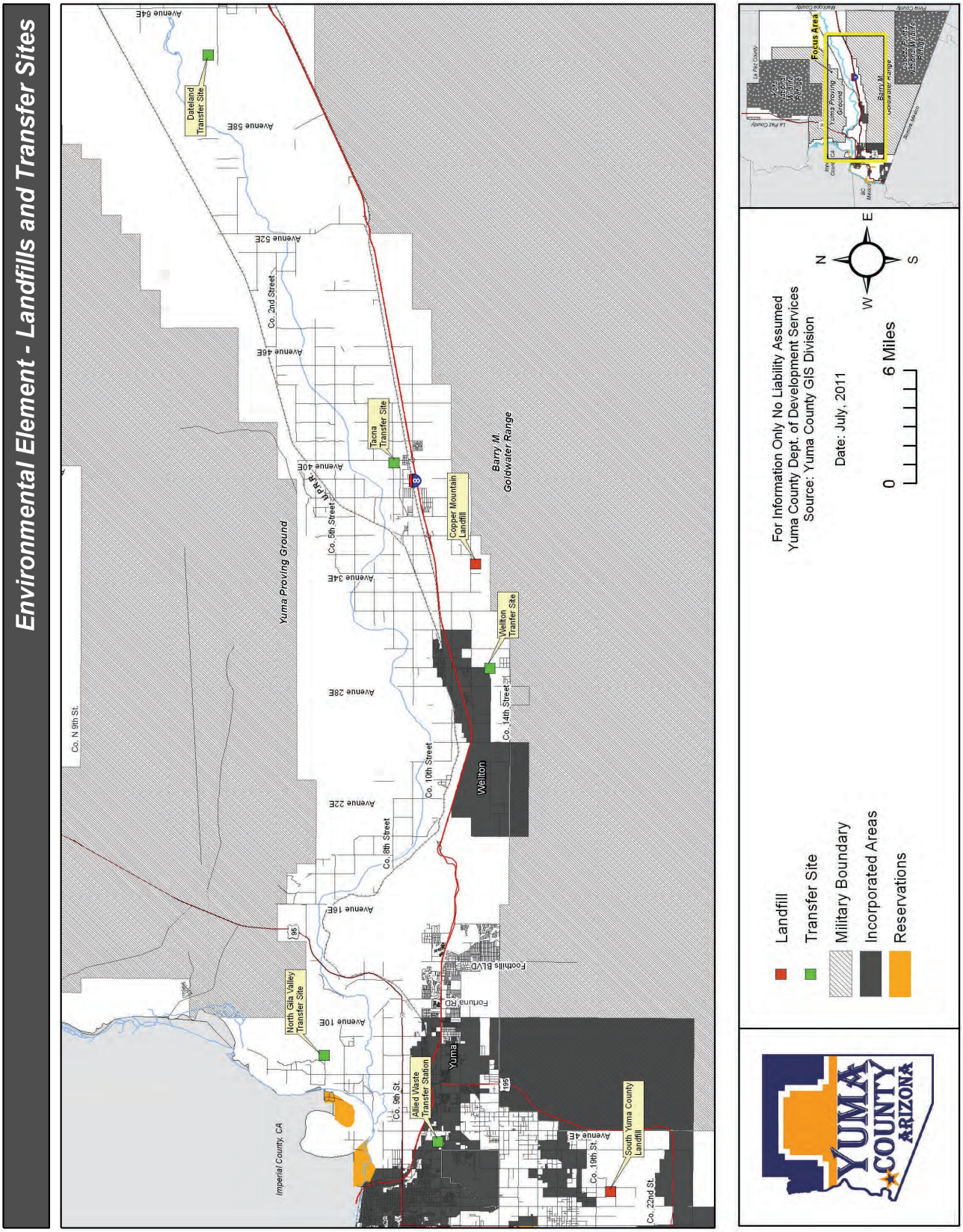
Solid waste is disposed at the Copper Mountain and South Yuma County Landfills. The county operates four solid waste transfer stations located in North Gila Valley, Wellton, Tacna and Dateland (Refer to Map 2). These sites only accept residential solid waste. Commercial and industrial solid waste disposal occurs through private providers. Local governments provide solid waste pickup within incorporated limits. There are several recycling businesses in operation, but currently there are no local government programs in place promoting the activity.

County Waste Management Issues:

- Need for additional waste transfer stations in the rural areas
- Desert Dumping Dilemma - illegal disposal of solid waste and sewage on public and private lands
- Transfer sites do not accept hazardous substances or refrigerants
- No facilities are available to accept medical wastes
- Financial operation costs for transfer sites, site safety and staffing
- Fiscal management and capacity of transfer stations
- Need for community clean up days
- Assure that landfills meet federal, state and local environmental laws
- Need for recycling programs

7.3.g Hazardous Materials

The existence of hazardous materials in facilities and in transport throughout Yuma County creates the potential for a catastrophic toxic release hazard to the population. The potential of a hazardous materials transportation incident that may require protection and/or evacuation of citizens at any location within Yuma County exists. Hazardous materials may enter and contaminate water supplies, irrigation and sewage systems necessitating the shutdown of such facilities until decontamination procedures can be implemented. Yuma County is in a high earthquake risk area. Any locally occurring earthquake of sufficient magnitude to cause structural damage could affect all fixed-site hazardous materials facilities resulting in multiple releases and catastrophic response problems.


Environmental Element - Landfills and Transfer Sites
Dateland Transfer Site
Taona Transfer Site
Copper Mountain Landfill
Welton Tranfer Site
North Gila Valley Transfer Site
Allied Waste Transfer Station
South Yuma County Landfill
Yuma Proving Ground
Barry M. Goldwater Range
Welton
Yuma
Imperial County, CA
Co. N 9th St.
Co. 2nd Street
Co. 5th Street
Co. 10th Street
Co. 14th Street
Co. 8th Street
Co. 9th St.
Co. 19th St.
Co. 22nd St.
Fortuna RD
Foothills BLVD
Avenue 64E
Avenue 58E
Avenue 52E
Avenue 46E
Avenue 40E
Avenue 34E
Avenue 28E
Avenue 22E
Avenue 16E
Avenue 10E
Avenue 4E
Focus Area
Landfill
Transfer Site
Military Boundary
Incorporated Areas
Reservations
For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division
Date: July, 2011
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YUMA COUNTY ARIZONA

Map 2

Hazardous materials move in and through Yuma County by truck, rail and air. There are no areas restricted from hazardous cargo transportation for this reason any of the roadways criss-crossing the County may be considered a potential HAZMAT route.

The Local Emergency Planning Committee (LEPC) is responsible for the development and maintenance of the Hazardous Material Emergency Response and Recovery Plan in Yuma County. This plan provides guidance to local municipalities and the unincorporated areas in response to an incident/accident involving hazardous materials in general.

7.3.h Resources: Natural and Manmade

Natural resources such as land, water, soil, plants and animals affect the quality of life for both present and future generations.

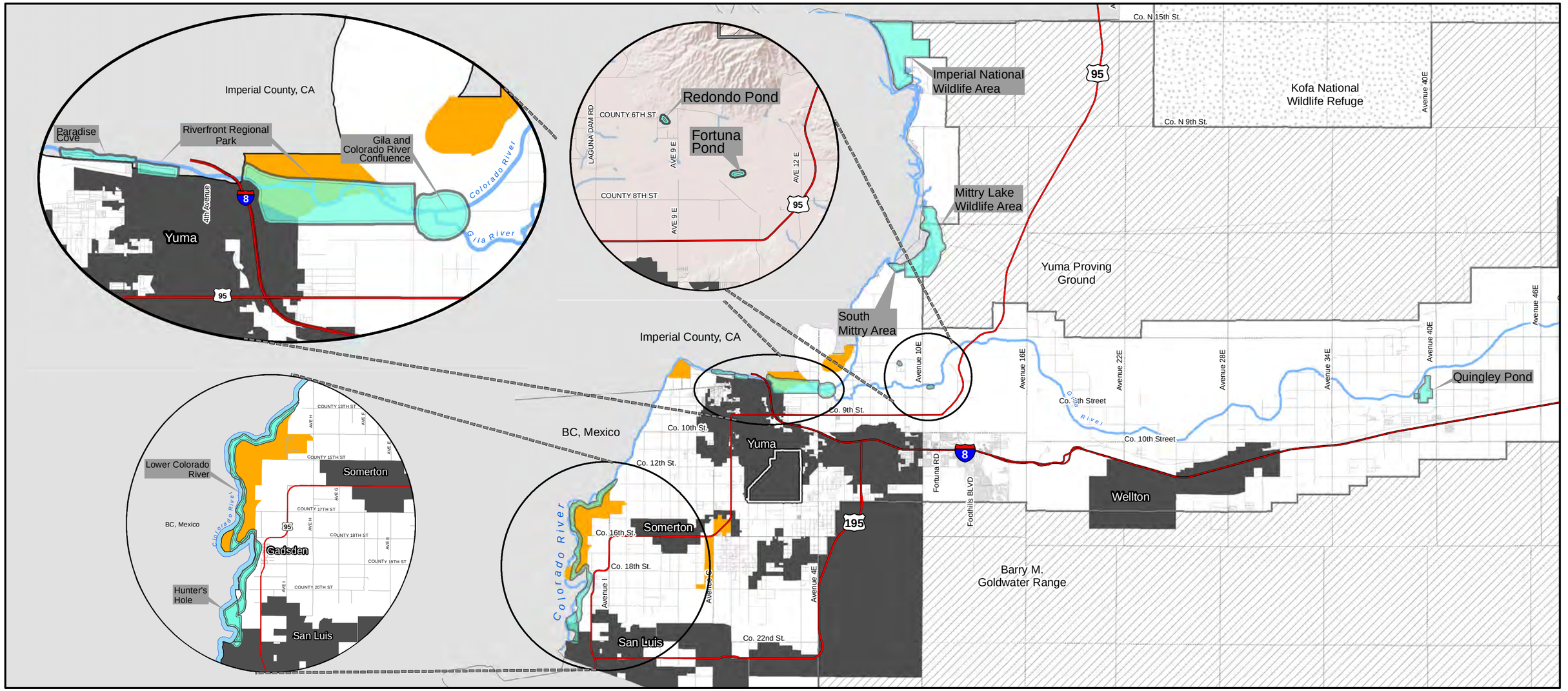
Agricultural Resources - Each year agricultural land is converted into other uses. The continuing trend has significant environmental impacts on residents and wildlife. Core issues and protective measures are listed below:

1. Residue from agricultural chemicals may infiltrate into the aquifer supply and/or well water used by homeowners.
2. Development located adjacent to farms may be subject to fertilizers and pesticides that can cause respiratory ailments. A.R.S. §3-365 regulates application of pesticides close to developed or occupied areas. This law is enforced by Yuma County Public Health Services District.
3. Confined animal operations pose threats to water tables and air quality. The Arizona Department of Agriculture, ADEQ and EPA issue permits and monitor related issues for confined animal feeding operations.
4. Sheep and cattle grazing may conflict with wildlife, traffic, deplete vegetative cover, cause soil loss and result in watershed contamination. There are eight countywide State Land Department cattle grazing leases representing 35,007 permitted acres.
5. Loss of scenic or visual values from the reduction of farmlands is an issue.
6. Urbanization of land is reducing plant and wildlife habitat.

Silviculture Areas - Silviculture areas refer to lands dedicated to the growing and cultivation of trees, primarily areas adjacent to the Colorado and Gila River Corridors. These lands are riparian habitats and silviculture containing unique wildlife species. The riparian areas have been depleted through changes of the timing, magnitude and extent of natural water delivery, deforestation, invasive species, development, mining, and harvesting. The result is erosion, high sedimentation build-up and a decrease in water quality. There is a concerted effort by local governments, tribes, state and federal agencies to restore native habitats and wildlife populations along the river corridors to the Mexico border (Map 3) . Specific plans dealing with restoration are listed in Table 1.

Urbanization of the Sonora Desert and Colorado and Gila Rivers has affected the habitats and viability of many local species. Implementation of mitigation measures in response to urban development should take into account the effect on the natural environment.

Environment Element - Habitat Restoration Project Areas in Yuma County



Habitat Restoration Areas

Incorporated Areas

U.S. Marine Corps

Military Boundary

National Wildlife Refuge

Indian Reservation

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division

Date: June, 2011

N W E S

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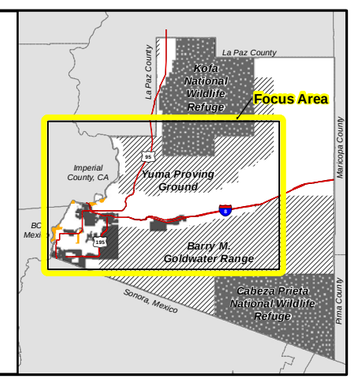


Table 1 Habitat Restoration Project Areas in Yuma County

Project Area	Acreage/Miles	Responsible Agency
Imperial National Wildlife Area	5,599 acres	U.S. Fish and Wildlife Service
Lower Colorado River (*Multi-Species Conservation Program*)	62 miles	Bureau of Reclamation (BOR) (Multi-Species Management Team)
Quigley Pond	240 acres	Arizona Game and Fish Department
Riverfront Regional Park (*East Wetlands, Riverfront Development and West Wetlands*)	7 miles (1,532 acres)	City of Yuma
Hunter's Hole	99.97 acres	Arizona Game and Fish Department
Cocopah West Reservation Plan (*Lower Colorado River*)	12 miles	Cocopah Indian Nation
Paradise Cove	68 miles	Bureau of Land Management (BLM)
Gila and Colorado River Confluence	29 acres	BLM
Fortuna Pond	25 acres	BOR, BLM, AGFD
Redondo Pond	5 acres	BLM, AGFD
Mittry Lake Wildlife Area	475 acres	BLM, AGFD, BOR
South Mittry Area	75 acres	BLM, AGFD, BOR

Cultural Resources - There are numerous culturally sensitive sites threatened by new development, vandalism, neglect and overuse. The five major contributing sources of ground disturbance in the county that damage cultural resources are urbanization, agriculture, deforestation, mining, road construction and reclamation projects. There is concerted interagency effort to preserve sites outside of the city of Yuma. Preservation efforts in the past have been through individuals, non-profit corporations, local government and individual state and federal agencies.

Yuma County has a rich history as an area of transportation crossroads, mining, agriculture and military development. These activities have left archeological and historical sites throughout the county. There are 60 historic properties listed on the National Park Service's National Register of Historic Properties. For example, El Camino del Diablo Trail was established as a National Byway and the Juan Bautista de Anza Trail and the Mormon Battalion Trail have been established as National Historic Trails and maintained by the National Park Service. These cultural and trail resources are also protected by the Arizona State Historic Preservation Office through their Stewardship Program.

The Yuma Chapter of the Arizona Historical Society also maintains a list of historically significant sites. These sites are related to engineering, agricultural and World War II desert training activities. They are also possible candidates for the National Register of Historic Properties. Management of legally protected cultural and historical resources has been largely a function of land ownership. The Bureau of Land Management (BLM), Bureau of Reclamation (BOR), Imperial National Wildlife Refuge, Kofa National Wildlife Refuge and Cabeza Prieta National Wildlife Refuge all maintain lists of archeologically and historically significant sites on the federal lands they control. These lists are confidential for protection of the integrity of the sites. The U.S. Army Yuma Proving Ground and the Barry M. Goldwater Range have conducted surveys of cultural resources on their properties and developed Historic and Archeological Resources Protection Plans. The degree of protection of cultural sites within the county are listed below:

- **Highest Protection:** Cultural resources on federally owned lands: BLM, BOR, U.S. Army; U.S. Marine Corps, and U.S. Fish and Wildlife Service have the highest protection of any lands. Arizona State Parks: Yuma Territorial Prison and Yuma Crossing.
- **Lower Protection:** Cultural resources on State Lands are less protected. The mission of the State Land Department is to dispose of lands for the "highest and best use" to gain revenue for the State Trust beneficiaries.
- **Little or No Protection:** Cultural resources on private lands are not protected by law except those that are currently on or candidates for the National Register of Historic Places.
- **Protection levels by local jurisdiction:** The County has never instituted cultural resource requirements in the Yuma County Comprehensive Plan or Zoning Ordinance. The City of Yuma is the only local government with a Historic Preservation Ordinance. The Ordinance covers the preservation of historical buildings within the corporate limits of the city. The cities of Somerton and San Luis have no preservation laws. Further, they do not consider cultural resources preservation in their development review process.

  The County needs to be an advocate and work cooperatively in identifying, developing, and protecting the culturally significant sites in the County. The county could take a pro-active role in assisting individuals, non-profit historic preservation organizations and government agencies concerning the preservation efforts of Yuma County's historical treasures.

- **Natural Conditions and Mitigation Measures:** Natural conditions are constantly being influenced, changed or controlled by human intervention. In planning for development, impacts to and from natural causes should be considered. This section looks at the natural conditions that may affect new development.
- **Environmental Land Use Designations:** The County's diverse land ownership and environment has resulted in large tracts of lands with significant natural resource conservation value. Designated open space, wilderness, wildlife refuge, State land and special management areas all have limitations on use and public access. Map 4 illustrates areas designated wilderness, habitat management and ownership patterns of these areas.

  Lands classified in the County as Open Space and Recreational Resources and Sensitive Areas and Resource Lands are listed in more detail in other elements of the Plan.

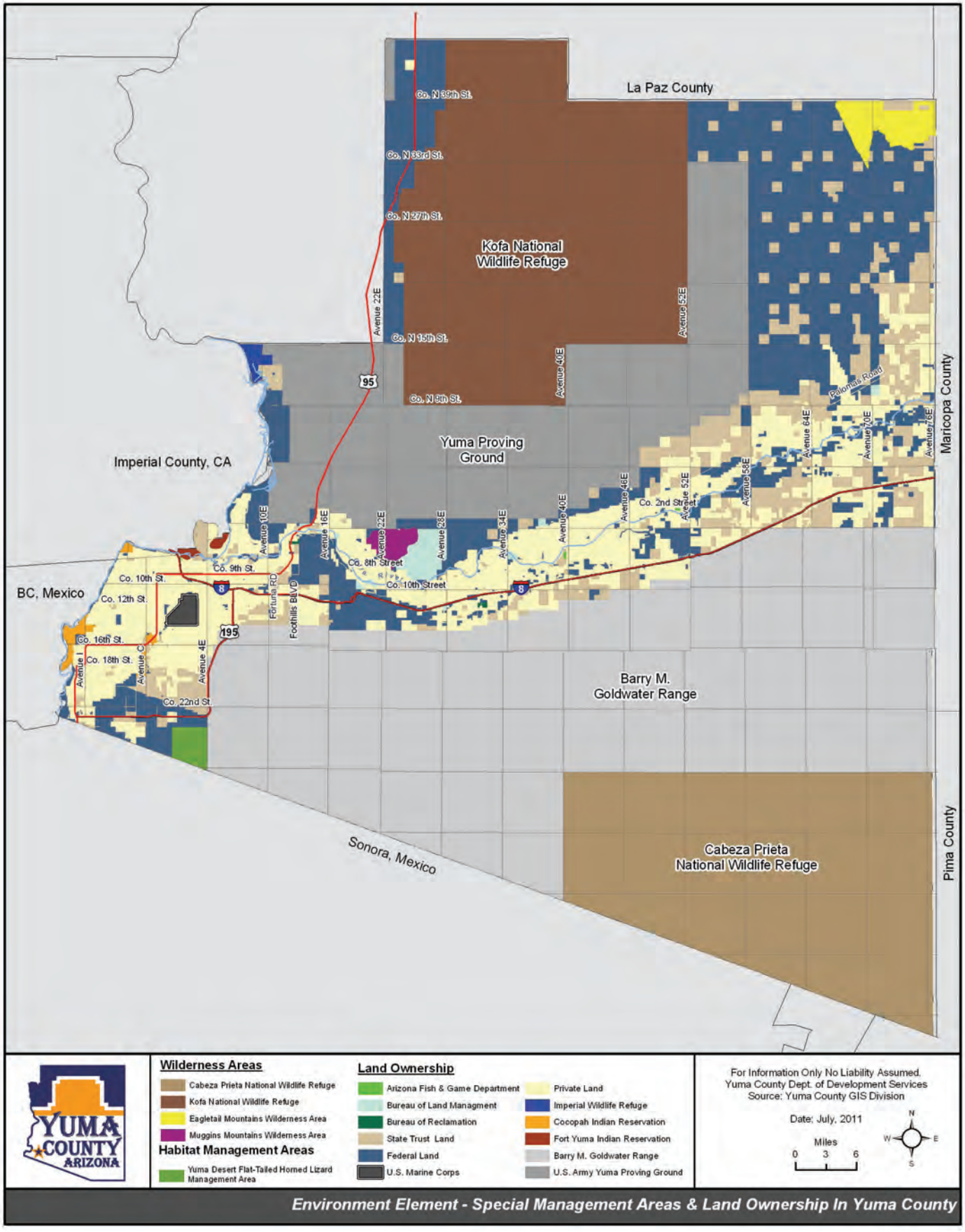
- **Geological Resources and Hazards:** Many geological features characterize the county. These include rugged mountains, sediment-filled basins, dissected and undissected alluvial slopes, river terraces, mesas, sand dunes and river valleys. Furthermore, are located within the region major fault lines including the San Andreas, Imperial, Cerro Prieto and Algodones faults.

  The seismic hazard in the Yuma region is considered the greatest in Arizona. There is the potential for severe earthquake damage because the valleys are made of alluvial soils, have high water tables and are subsequently prone to liquefaction during seismic events. Significant damage to residential, commercial and industrial facilities could occur as a result of earthquakes measuring a magnitude of 5.0 or greater. Mitigation measures include adopting building standards from the 2003 Uniform Building Code and Earthquake Hazard Evaluation criteria.

Biological Resources:

Vegetation - Since the county is within the Sonoran Desert physiographic province, the county is home to a variety of unique Colorado River and Arizona Uplands plant communities. Continued development is diminishing the native Sonoran desert plants and wetland species and increasing the number of invasive weed species. Vegetation on the Endangered Species Act list contains only "Species of Concern" that include Dune Spurge, Gander's Cryptantha, Dune Sunflower and Sand Food. There are no plants listed as threatened and endangered (Table 2).

Arizona Native Plant Law (A.R.S. §3-901 *et. seq.*) protects and regulates the collection and salvaging of native plants and parts of plants including seeds and fruit located on state and federal lands. Private property owners are not affected by the law unless the plants are to be transported or sold. The demand for desert landscaping in new developments has resulted in the illegal harvesting of cacti causing loss of soils and habitat.



Map 4: Special Management Areas & Land Ownership in Yuma County

Noxious weeds have direct and indirect economic consequences. Weeds can affect agriculture, urban environment, fish and wildlife habitat, recreational values and can cause human health concerns. A noxious weed list prohibits transport of weed species without state or federal permits (A.R.S. §3-232, 7 United State Code 2803 and 2809). Currently, an invasive aquatic fern, Giant Salvinia, has invaded the Lower Colorado River. Efforts by a consortium of state and federal agencies to eradicate the plant are being made before severe economic and ecological problems occur.

Wildlife - The County is home to a diverse wildlife ranging from big game to reptiles and amphibians. The Endangered Species Act (ESA) lists candidate threatened and endangered species that are found in the county. Included on the list are the Pronghorn Sonoran Antelope, the Yuma Clapper Rail, the Southwestern Willow Flycatcher, the Razor Back Sucker and the Desert Tortoise. The Arizona Game and Fish Department Special Status Species list also documents species that are of "concern" but do not have official status as an Endangered Species (Table 2).

Wildlife and habitat management in the county is a cooperative effort. Arizona Revised Statutes Title 17 directs the responsibility for maintaining and managing the State's wildlife resources to the Arizona Game and Fish Commission and Department. Local organizations, farmers, irrigation districts, the Bureaus of Land Management and Reclamation, the Cocopah Indian Tribe, Marine Corps Air Station-Yuma, U.S. Army Yuma Proving Ground, city of Yuma and the U.S. Fish and Wildlife Service all contribute measures and resources to develop and implement associated management plans for natural resources conservation.

The Arizona Game and Fish Department has identified important habitat areas for the Flat-tailed Horned Lizard, Big Horn Sheep, Sonoran Pronghorn Antelope and Sonoran Desert Tortoise within the Barry M. Goldwater Range, U.S. Army Yuma Proving Ground and on other public and state-owned lands. Yuma County will coordinate when possible with the Arizona Game and Fish Department wildlife connectivity and movement.

Similar to the diminishing vegetative habitat, continued development also stresses wildlife habitat and displaces species. As a result, wildlife species are occurring more commonly in residential areas and subdivisions.

Soils - The U.S. Department of Natural Resource Conservation Service conducted soil surveys from 1972-1977 that identified 34 soil types in the County (see soils types Section 7.8). Soil types are an important factor in determining land use limitations and site suitability. Identifying soil conditions before development is important. Problems associated with unsuitable soil include infrastructure, foundations displacement and decomposition conditions.

Arizona Game and Fish Department
Special Status Species List for Yuma County

TAXON	SCIENTIFIC NAME	COMMON NAME
AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog
BIRD	Ardea alba	Great Egret
BIRD	Athene cunicularia hypugaea	Western Burrowing Owl
BIRD	Coccyzus americanus	Yellow-billed Cuckoo (Western U.S. DPS)
BIRD	Egretta thula	Snowy Egret
BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher
BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl
BIRD	Haliaeetus leucocephalus	Bald Eagle - Winter Population
BIRD	Ixobrychus exilis	Least Bittern
BIRD	Lanius ludovicianus	Loggerhead Shrike
BIRD	Laterallus jamaicensis coturniculus	California Black Rail
BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail
FISH	Xyrauchen texanus	Razorback Sucker
MAMMAL	Antilocapra americana sonoriensis	Sonoran Pronghorn
MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat
MAMMAL	Euderma maculatum	Spotted Bat
MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat
MAMMAL	Lasiurus xanthinus	Western Yellow Bat
MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat
MAMMAL	Macrotus californicus	California Leaf-nosed Bat
MAMMAL	Myotis yumanensis	Yuma Myotis
MAMMAL	Nyctinomops femorosaccus	Pocketed Free-tailed Bat
MAMMAL	Sigmodon hispidus eremicus	Yuma Hispid Cotton Rat
PLANT	Allium parishii	Parish Onion
PLANT	Berberis harrisoniana	Kofa Mt Barberry
PLANT	Cryptantha ganderi	Gander's Cryptantha
PLANT	Echinocactus polycephalus var. polycephalus	Clustered Barrel Cactus
PLANT	Euphorbia platysperma	Dune Spurge
PLANT	Ferocactus cylindraceus	Desert Barrel Cactus
PLANT	Helianthus niveus ssp. tephrodes	Dune Sunflower
PLANT	Lophocereus schottii	Senita
PLANT	Opuntia echinocarpa	Straw-top Cholla
PLANT	Pholisma sonorae	Sand Food
PLANT	Rhus kearneyi	Kearney Sumac

Table 2

TAXON	SCIENTIFIC NAME	COMMON NAME
PLANT	Stephanomeria schottii	Schott Wire Lettuce
PLANT	Triteleiopsis palmeri	Blue Sand Lily
PLANT	Washingtonia filifera	California Fan Palm
REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise
REPTILE	Heloderma suspectum cinctum	Banded Gila Monster
REPTILE	Lichanura trivirgata gracia	Desert Rosy Boa
REPTILE	Phrynosoma mcallii	Flat-tailed Horned Lizard
REPTILE	Sauromalus ater (Arizona Population)	Arizona Chuckwalla
REPTILE	Uma rufopunctata	Yuman Desert Fringe-toed Liz-

Table 2

7.4 CAG Recommendations

Citizen Advisory Groups (CAGs) were asked to identify the most important environmental issues of concern in the county.

The CAG participants developed the following recommendations for minimizing or mitigating the adverse impacts caused by the aforementioned environmental issues.

Hydrology (Water Quality)
- Collaborate with local, state and federal agencies on ecological concerns to protect watersheds.
- Coordinate with local water companies to ensure good residential water quality.

Hydrology (Water Quantity)
- Protect and monitor the water allocations for future growth in the county.
- Institute water conservation practices.

Agriculture (Loss of Prime and Unique Farmland)
- Plan to protect farmland from urban encroachment.
- Provide incentive programs for farmers to retain farmlands.

Air Quality
- Plan for monitoring and control of air pollution emissions.
- Enforce monitoring, maintenance and enforcement of EPA and ADEQ-Quality Division Best Management Practices countywide to reduce PM-10 emissions.

Hazardous Wastes and Disposal
- Provide for waste transfer sites for residents throughout the county.
- Plan and provide for affordable dumping of hazardous materials.
- Plan, develop programs and educate the public on recycling.
- Create community clean up days for specific areas.
- Create Programs to prevent illegal dumping

Supplemental Materials - For a more in-depth analysis and understanding of the Planning Areas, refer to the *Background Studies and CAG Reports* for each Planning Area. These documents were developed and published by the Planning Section of the Yuma County Department of Development Services. The documents are available on the Yuma County website.

7.5 Environmental Policies and Priorities

EPP.1: Encourage land uses and development designs that are compatible with environmentally sensitive areas such as parks, open space, floodplains, hillsides, habitat for sensitive plant and wildlife species, scenic areas, washes and unstable geologic and soil conditions.

EPP.2: Encourage low density land uses around federal and state owned lands.

EPP 3: Encourage the protection and preservation of existing habitat areas for threatened or endangered plant and wildlife species.

EPP.4: Encourage consideration of the natural environment during the review of new development projects including options for the preservation of the native vegetation, wildlife and washes.

EPP.5: Implement a solid waste program that advocates solid waste reduction, reuse and recycling.

EPP:6: Encourage nighttime lighting be kept to a minimum to maintain the dark sky.

EPP.7: Encourage the preservation of the scenic quality and vistas of all mountain ranges in the county.

EPP.8: Encourage development to retain washes in their natural state.

EPP.9: Encourage the enforcement of measures necessary to maintain and improve the existing national ambient air quality standards and the reduction of dust pollution.

EPP.10: Protect air quality during plan reviews for new industrial, commercial and residential projects in compliance with county, state and federal air quality plans and standards.

EPP.11: Encourage the paving of unpaved roads where dust pollution affects residents and the environment and is in violation of the state and federal air quality standards.

EPP.12: Discourage development and roads in severe erosion and landslide hazard areas.

EPP.13: Encourage the protection of cultural sites which meet national, state or local criteria for historic designation from destruction or harmful alteration.

EPP.14: Encourage the preservation of significant cultural and archaeological resources within all developments.

EPP.15: Encourage the coordination of noise and nuisance control programs and standards with local, state and federal agencies.

EPP.16: Consider noise impacts from roadways, rail corridors and industry for new residential development.

EPP.17: Involve the Airport Authority to minimize potential conflicts between residential development and airport operations.

7.6 Environmental Actions

EA.1: Work with existing recycling companies to determine the feasibility of a pilot recycling program.

EA.2: Work with the State Historic Preservation Office, Arizona Site Steward Program and Arizona Archeological Society to inventory and develop a program to manage cultural resources.

EA.3: Develop and/or maintain environmental overlay map(s) and information materials that identify natural floodplains, geological and soil risk areas.

EA.4: Develop a natural resource impact checklist to assess potential negative and positive impacts from development and recommend mitigation measures.

EA.5: Serve as a resource and liaison in supporting regional water resource and watershed planning.

EA.6: Create maps of major infrastructure for emergency response teams.

EA.7: Update the Yuma County Zoning Ordinance to regulate and promote sensible lighting that reduces light pollution in Yuma County.

EA.8: Modify illegal dumping laws to reduce violations and to increase penalties.

EA.9: Work with the Arizona Game and Fish Department to help identify, refine and implement wildlife linkages and other wildlife-friendly development measures, where feasible**.**

7.7 State and Federal Environmental Laws

Arizona State Laws:

Water Resources
Chapter 7 Article 2 Determining Navigability A.R.S. §37-1121-1128,1129.16
Chapter 1 Article 4 Public Nature and Use of Surface Water A.R.S. §45-141
Chapter 1 Article 5 Appropriation of Water A.R.S. §45-151-166
Chapter 1 Article 6 Rights to Water A.R.S. §45-171-175
Chapter 1 Article 7 Water Rights Registration A.R.S. §45-181-190
Chapter 1 Article 8 Reservoirs and Canals A.R.S. §45-201-206
Chapter 1 Article 9 General Adjudication of Water Rights A.R.S. §45-251-264
Chapter 2 Article 4 Groundwater Rights and Uses in General A.R.S. §45-453-455
Chapter 2 Article 7 Groundwater Withdrawal Permits A.R.S. §45-511-528
Chapter 7 Article 2 Colorado River Compact A.R.S. §45-1321
Chapter 8 Article 1 Flood Control Cooperation by Counties, Cities, and Towns with Federal Government A.R.S. §45-1401-1403
Chapter 8 Article 2 Special Laws Pertaining to Particular Municipalities A.R.S. §45-1422
Chapter 8 Article 4 Alternative Assistance A.R.S. §45-1471-1473
Chapter 10 Article 1 State Water and Power Plan A.R.S. §45-1701-1722
Chapter 2 Articles 1-12 Water Quality Control A.R.S. §49-201-391

Agricultural Resources
Chapter 1 Article 2 Agriculture Protection Act A.R.S. §3-111-113
Chapter 2 Article 3 Fertilizer Materials A.R.S. §3-260-384
Chapter 2 Article 5 Pesticides A.R.S. §3-340-356
Chapter 2 Article 6 Pesticide Control A.R.S. §3-360-383
Chapter 4 Article 7 Dairies and Dairying A.R.S. §3-600-634
Chapter 11 Article 9 Beef Cattle Feed Lots A.R.S. §3-1451-1457
Chapter 14 Article 1 Predatory Animals and Rodents A.R.S. §3-2400-2406
Chapter 16 Article 1 Aquaculture A.R.S. §3-2900-2913

Air Quality
Chapter 3 Article 3 County Air Pollution Control A.R.S. §49-471-593

Solid Waste Disposal
Chapter 4 Articles 2-9 Solid Waste Management A.R.S. §49-701-881
Chapter 6 Articles 1 & 2 Public Health Control A.R.S. §36-600-631

Hazardous Waste
Chapter 5 Articles 1-4 Hazardous Waste Disposal A.R.S. §49-901-973

Noise Environment
Chapter 25 Article 7 Planning and Zoning; Military Airport Operation Compatibility A.R.S. §28-8481
Chapter 25 Article 7 Incorporation of Sound Attenuation Standards in Building codes A.R.S. §28-8482
Chapter 25 Article 7 Airport Influence Areas; Notice A.R.S. §28-8485

Silvicultural Areas
Chapter 2.1 Article 1 State Forester A.R.S. §37-621-623.02

Biological Resources
Chapter 2-Article 1 Dangerous Plants, Pests and Diseases A.R.S. §3-200-218
Chapter 4 Article 1 Restoration Projects A.R.S. §17-401-407
Chapter 7-Article 1 Arizona Native Plant Law A.R.S. §3-900-934
Chapter 1 Article 1 Definitions and Authority of State A.R.S. §17-101-105
Chapter 1 Article 3 Powers and Duties A.R.S. §17-231-247
Chapter 4 Article 1 Restoration Projects A.R.S. §17-401-407
Chapter 4 Article 2 Fish Hatching and Fish Culture A.R.S. §17-421
Chapter 4 Article 3 Wildlife Habitat Protection A.R.S. §17-451-458

Soils
Chapter 6 Article 2 Division of Natural Resource Conservation A.R.S. §37-1011-1015
Chapter 6 Article 4 Administration limitation of Powers A.R.S. §37-1055
Chapter 6 Article 4 Cooperation by State Agencies A.R.S. §37-1057

Geological Hazards
Chapter 1 Article 2 Mines and Mineral Resources A.R.S. § 27-129, 131 & 318
Chapter 2 Articles 1-3 Emergency Management Planning and Community Right to Know Act A.R.S. § 26-300-352

Cultural Resources
Chapter 3 Article 1 Arizona State Parks Board Heritage Fund A.R.S. §41-501-504
Chapter 3 Article 1.1 Arizona State Parks Board A.R.S. §41-511-511.24
Chapter 3 Article 1.2 Arizona Outdoor Recreation Coordinating Commission A.R.S. §41-511.25
Chapter 3 Article 1.3 Establishment of Parkways and Historical and Scenic Roadways A.R.S. §41-511.26
Chapter 4.1 Article 1 Arizona Historical Society A.R.S. §41-821-826
Chapter 4.1 Article 4 Archeological Discoveries A.R.S. §41-841-847
Chapter 4.2 Article 1 Historic Preservation General Provisions A.R.S. §41-861-866
Chapter 4.3 Article 1 Neighborhood Preservation General Provisions A.R.S. §41-885-892

Environmental Land Use Designations
Chapter 2 Articles 1-7 Administration of State and other Public Lands A.R.S. §37-100-1156

Federal Laws:

Water Resources

Clean Water Act (CWA), 33 U.S. Code §1251 et seq. (1977): The law provides for cooperation of the federal government with other federal, state and local entities to prepare comprehensive programs for eliminating or reducing the pollution of interstate waters and tributaries and improving the sanitary condition of surface and subsurface waters. The plans include the necessary improvements necessary to conserve waters for public water supplies, propagation of fish and aquatic life, recreational purposes and agricultural and industrial uses. The law was amended to provide for additional water quality programs, standards and procedures to govern allowable discharges, funding for construction grants or general program funding.

Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500): Law stipulates broad national objectives to restore and maintain the chemical, physical and biological integrity of the Nation's waters (33 U.S. Code)**.** In addition, amendments expanded provisions related to pollutant discharges. These provisions include requirements that limitations be determined for point sources which are consistent with state water quality standards, procedures for state issuance of water quality standards, development of guidelines to identify and evaluate the extent of nonpoint source pollution, water quality inventory requirements and development of toxic and pretreatment standards (33 U.S.Code §1311-1313 and 33 U.S.C. §1315-1317).

Safe Drinking Water Act (SDWA), 42 U.S. Code 300f et seq. (1974): The Act directed the Environmental Protection Agency (EPA) to protect public health by regulating the nation's public drinking water supply systems. Amended in 1986 and 1996 the law requires actions to protect drinking water and its sources: rivers, reservoirs, springs and groundwater wells. It also authorized the EPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. It requires that the EPA, states and water systems work together to make sure that these standards are met.

Water Quality Act of 1987 (Public Law 100-4) provided most recent series of amendments to the original Clean Water Act. Some of the provisions included are: Requirement that States develop strategies for toxics cleanup in water where the application of "Best Available Technology (BAT) discharge standards is not sufficient to meet state water quality standards and support public health (33 U.S. Code); increase in the penalties for violations of section 404 permits (33 U.S. Code §1344).; provisions that additional state reporting requirements on water quality of lakes including methods to mitigate the harmful effects of high acidity (33 U.S. Code §1324); Establishment of a program for states to develop and implement, on a watershed basis, nonpoint source management and control programs (33 U.S.Code).

Wild and Scenic Rivers Act (Public Law 90-542) Oct. 2, 1968, 82 stat. 906 and as amended: The Act established a National Wild and Scenic Rivers System and prescribes the methods and standards through which additional rivers may be identified and added to the system.

Executive Order 11990, Protection of Wetlands, May 24,1977, 44 Federal Register 1955: Directs all agencies to lead and implement action to minimize the destruction, loss or degradation of wetlands according to the NEPA. The order covers aspects of federal actions or federally funded actions affecting wetlands, including land management, facilities development and licensing regulations. In carrying out any activities affecting wetlands, federal agencies or recipients of federal project funding must consider such factors as public health, safety and welfare, including such things as water supply and quality, recharge and discharge areas for ground water, pollution, etc.

Agriculture

Farmland Protection Policy Act, (FPPA) (Public Law No. 97-98) U.S. Code §4201(1996): The purpose of the law is to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The Act also stipulates that federal programs be compatible with state, local and private efforts to protect farmland.

Air Quality

Clean Air Act (CAA), 84-159 (Air Pollution Control Act: July 1955), 42 U.S. Code §7401 et seq. (1970): The primary objective of the Clean Air Act is to establish National Ambient Air Quality Standards (NAAQS) for various pollutants from area, stationary and mobile sources to protect public health and the environment. To provide for the regulation of polluting emissions via state implementation plans. The amendments are designed to prevent significant deterioration in certain areas where air quality exceeds national standards, and to provide for improved air quality in areas which do not meet Federal standards ("nonattainment" areas").

Hazardous Materials & Waste Management

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) 42 USC §9601 *et seq.;* as amended by Superfund Amendments and Reauthorization Act (SARA), (Public Law 99-499) October 17,1986: Established a comprehensive system to react to releases of hazardous substances, conduct assessments and to determine liability and compensation for those affected natural resources. Established the Superfund monies for remediation or removal actions for the release of hazardous substances causing damage and injury to, destruction of or loss of natural resource damages. Maintains the National Priorities List (NPL) characterization studies and other projects to address environmental concerns.

Resource Conservation and Recovery Act (RCRA), 42 U.S. Code §6901 et seq. (1976): The Act controls and regulates the generation, treatment, transportation, storage and disposal of solid and hazardous wastes. Provisions include the management, replacement and monitoring of underground storage tanks. The applicability of federal, state and local laws to solid waste management and recycling are found in the Act.

Oil Pollution Act, 1990, 33 U.S. Code §2702 to §2761: The Act strengthened the EPA's ability to prevent and respond to catastrophic oil spills. A trust fund financed by a tax on oil is available to clean up spills when the responsible party is incapable or unwilling to do so. It requires plans to be submitted on how storage facilities and vessels will respond to large discharges. It requires the development of Area Contingency Plans to prepare and plan for oil spill response on a regional scale.

Pollution Prevention Act 42 U.S. Code §13101 and §13102 et seq. (1990): The Act focuses on industry, government and public attention on reducing the amount of pollution through cost effective changes in production, operation and raw materials use. Pollution prevention includes other practices that increase efficiency in the use of energy, water or other natural resources and protect the natural resource base through conservation. Instituting practices include recycling, source reduction and sustainable agriculture.

Toxic Substances Control Act, 15 U.S. Code §2601 et seq. (1976): The Act authorized EPA to secure and track information on all new and existing chemical substances currently produced or imported into the United States and to control any of these substances determined to cause an unreasonable risk to public health or the environment.

Environmental Pesticide Control Act 1972 (7 US Code 136-136y, Public Law 92-516, October 21, 1972), 86 Stat 973) as amended: The Act established the EPA program for controlling the sale , distribution and application of pesticides and for penalties through an administrative registration process. The amendments authorized experimental use permits and provided for administrative review of registered pesticides and for penalties for violations. States were authorized to regulate the state or use of any pesticide within a state, provided the regulation does not permit any sale or use prohibited by the Act.

Cultural Resources

Antiquities Act of 1906 (Public Law 59-209): The Antiquities Act provides for the protection of archeological resources on federal lands through criminal sanctions against excavation, injury or destruction of archeological sites without permission.

Archeological and Historic Preservation Act (16 U.S. Code 469-469c), Public Law 86-523, approved June 27, 1960 (74 Stat 220) as amended by Public Law 93-291, approved May 24,1974, (88 Stat.174): to carry out policy established by the Historic Site Act, directed federal agencies to notify the Secretary of the Interior whenever they find a Federal or federally assisted, licensed or permitted project that may cause loss or destruction of significant scientific, prehistoric or archeologic data. The Act authorized use of appropriated, donated and/or transferred funds for the recovery, protection and preservation of such data.

Historic Sites, Buildings and Antiquities Act (16 U.S. Code 461-462,464-467), August 21,1935 (49 Stat. 666) known as the Historic Sites Act, as amended by Public Law 89-249, approved October 9, 1965, (79 Stat. 971): Established national policy to preserve historic sites and objects of national significance. It provided procedures for designation, acquisition, administration and protection of such sites. The National Historic and Natural landmarks are designated under authority of this Act.

National Historic Preservation Act of 1966 (Public Law 89-665 as amended by Public Law 94-422, Public Law 94-458, and Public Law 96-515: The National Historic Preservation Act is the basic federal mandate for managing and protecting historic properties. Section 106 require federal agencies to account for the effects of their actions on historic properties on public and private lands. It allows the public, the State Historic Preservation Officer and the President's Advisory Council on Historic Preservation to comment on federal undertakings before authorization. Section 110 requires agencies to systematically inventory all lands for historic properties and protect them for active management. The 1992 Amendments directs agencies to account for the effects of proposed activities on traditional cultural properties associated with Native Americans, ranching communities and other traditional lifeways. Code 36 of Federal Regulations 800 revised July 1999 requires consultation with Tribal Historic Preservation Officers in the determination of significant Traditional Cultural Places and the affects of federally funded actions upon them.

American Indian Religious Freedom Act of 1978 (Public Law 95-341): The American Indian Religious Freedom Act requires federal agencies and agencies receiving federally funds to consider the effect of their policies on Native American traditional beliefs.

Native American Graves Protection and Repatriation Act (Public Law 101-106): Establishes requirements for the treatment of Native American human remains and sacred or cultural objects found on federal land.

Archeological Resources Protection Act of 1979 (Public Law 95-96): The Act established detailed requirements for issuance of permits for any excavation for or removal of archeological resources from Federal or Indian lands. It also established civil and criminal penalties for the unauthorized excavation, removal or damage of any such resources; for any trafficking such resources removed from federal or Indian land in violation of any provision of federal law; and for interstate and foreign commerce in such resources acquired, transported or received in violation of any state or local law.

National Trails System Act (16 U.S. Code 1241-1249) Public Law 90-543, October 2, 1968, (82 Stat. 919): Provided for establishment of National Recreation and National Scenic trails. Public Law 95-625, approved November 10, 1978, (92 Stat. 3511) as amended created a new category of National Historic Trails to closely follow original routes of national historic significance. National Recreation Trails may be established by the Secretaries of Interior or Agriculture on land wholly or partly within their jurisdiction, with the consent of the involved state(s) and other managing agencies, if any. National Scenic and National Historic Trails may only be designated by an Act of Congress.

Cave Resources

The Federal Cave Resources Protection Act of 1988 (FCRPA) Public Law 100-691 (16 U.S.C.4301 et seq.; 102 Stat. 4546): established requirements for the management and protection of caves and their resources on federal lands, including allowing the land managing agencies to withhold the location of caves from the public, and requiring permits for any removal or collecting activities in caves on federal lands.

Geological Hazards

Colorado River Floodway Protection Act, (Public Law 99-450) Oct. 8, 1986 (100 Stat.1129): Established a Colorado River Floodway Area, within which prohibited all new federal funding or financial assistance for any purpose (except for listed exceptions), federal flood insurance for new construction or substantial improvements begun six months after enactment on existing structures, and granting of federal leases (unless the Secretary determines the purpose is consistent with the Act).

Biological Resources

National Environmental Policy Act of 1969 (NEPA) (Public Law 91-190),as amended: Requires that all federal agencies to prepare detailed environmental impact statements for every major federal actions significantly affecting the quality of the human environment. Public Law 94-83, August 9, 1975, 89 Stat 424. clarified the application of NEPA to the preparation of impact statements for projects implemented by states under a system of federal grants.

The Endangered Species Act, 7 U.S. Code §136; 16 U.S. Code §460 et seq.(1973): The Act provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found that are threatened or endangered with extinction. The act prohibits the taking of species listed as threatened or endangered, either directly or indirectly, through habitat loss or modification. The Department of Interior maintains the list of endangered and threatened species. This prohibition applies to all activities regardless of land ownership.

Sikes Act, (Public Law 86-797) Sept. 15, 1960 (16 U.S. Code 670 a-670o, 74 Stat. 1052): provides for cooperation by the Departments of the Interior and Department of Defense with State agencies in planning, development and maintenance of fish and wildlife resources on military reservations throughout the United States. Amended August 8, 1968, (P.L. 90-465, 82 Stat 661 authorizes a program for development of outdoor recreation facilities. Amended Public Law 99-561, approved October 27, 1986 (100 Stat. 3149) requires Secretary of each military department to use trained professionals to manage the wildlife and fishery resources under their jurisdiction and requires federal and state fish and wildlife agencies be given priority in management of fish and wildlife activities on military reservations.

Amended (Public Law 105-85) November 18, 1997 (11 Stat.2017, 2018, 2020, 2022): The Act authorized the preparation of an Integrated Natural Resources Management Plan (INRMP) to provide for sustainable use by the public of natural resources, to the extent when the use is not consistent with the needs of fish and wildlife resources.

Federal Noxious Weed Act (Public Law 93-629) (7 U.S. Code 2801 et. seq.; 88 Stat 2148), enacted January 3, 1975: established a Federal program to control the spread of noxious weeds. The law provides for the inspection, seizure and destruction of infested products and to quarantine areas to prevent the spread of weeds. Law provides for authorization of cooperation of federal, state and local agencies, farmers associations and private individuals in measures to control, eradicate or prevent or retard the spread of weeds.

Migratory Bird Treaty Act, (Public Law 86-732) (1960): The Act is an international treaty that prohibits the taking of any migratory bird without permit or authorization. This prohibition applies to all activities regardless of land ownership.

Fish and Wildlife Coordination Act, 16 U.S. Code 661-667e, March 10,1934, as amended 1946,1958,1978, and 1995: The purpose of the Act is for the development and implementation of conservation plans and programs, protection and management for non-game fish and wildlife, including migratory non-game birds.

Executive Order 13112, Invasive Species, February 3, 1999: The Act requires all agencies to take action to prevent the introduction of invasive species, detect and control invasive species populations, monitor invasive species, provide for restoration of native species, conduct research on invasive species, develop technologies to prevent the introduction of invasive species and promote public education.

Bald Eagle Protection Act of 1940, (16 U.S. Code 668-668d, 54 Stat.250) as amended June 8, 1940, as amended by Public Law 86-70 (73 Stat 143) June 25, 1959; Public Law 87-884 (76 Stat. 1346) October 24, 1962; P.L. 92-535 86-1064) October 23, 1972; and Public Law 95-616 (92 Stat. 3114) November 8, 1978: This law provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act.

The 1982 amendment authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. A 1994 Memorandum(59 F.R. 22953, April 29, 1994) from President William J. Clinton to the heads of executive agencies and departments sets out policy concerning collection and distribution of eagle feathers for Native American religious purposes.

Wild Horses and Burros

Wild Free-Roaming Horses and Burros Act of 1971, Public Law 92-195, as amended by P.L. 94-579 (1978): This act protects wild free roaming horses and burros, directing the BLM and Forest Service to manage such animals on public lands under their jurisdiction.

Environmental Land Use Designations

Wilderness Act Public Law 88-577 (16 USC 1131-1136) §*1133, approved September 3, 1964.* The Act established a national wilderness preservation system to preserve federally owned lands designated by Congress as "wilderness areas" to protect, preserve and manage its natural conditions so that present and future generations may benefit.

Human Impacts

Freedom of Information Act 5 U.S. Code 552; 88 Stat. §1561 provides for any member of the public, American citizen and non-citizen alike to obtain records created and maintained by all agencies of the executive branch of the United States. Access to paper documents, tapes, films and other materials created by the agency as a part of its official responsibilities.

Electronic Freedom of Information Act 5 U.S. Code §231, 110 Stat 2422, October 2, 1996: Provided for the expansion of the FOI act to include a record of electronically created documents and information, including computer databases, electronic documents, word processing documents and e-mail.

Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations: The goal of environmental justice is to promote fair treatment and equal protection of all people, regardless of their race, culture and/or income status so that they can live in a safe, healthy and clean communities.

Emergency Planning and Community Right to Know Act (EPCRA) 42 U.S. Code §11001 *et seq. (1986)*: The law was designated to help local communities protect public health, safety and the environment from chemical hazards. The Toxic Release Inventory (TRI) is mandated by a provision of the EPCRA, which requires specified industries to report releases of more than 650 chemicals and chemical categories to air, land and water. The purpose is to give citizens information about chemicals being used, processed, manufactured or released from facilities in their communities. The act was amended in 1999 to include mining industry.

Occupational Safety and Health Act 29 U.S. §Code 651 *et seq. (1970)*: The Act was to ensure worker and workplace safety. To make sure that employers provide workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress or unsanitary conditions. The Act created the National Institute for Occupational Safety and Health (NIOSH) that established standards for workplace safety.

Civil Rights Act of 1964, Title VII, 42 US Code Sec. 2000e Public Law 88-352 as amended. The law provides that no person on the basis of race, color , or national origin shall be excluded from participation, denied program benefits or subjected to discrimination.

7.8 Soils Types, Acreage & Shrink-Swell Potential

Shrink-Swell Potential: The shrinking of soil when dry and the swelling when wet (Soil Conservation Service).

Soil Type	Acreage	Shrink-Swell Potential
Antho sandy loam	16,990	Low
Antho fine sandy loam	4,105	Low
Carrizo very gravelly sand	43,177	Low
Cheroni-Rock outcrop complex	16,845	Low
Dateland loamy fine sand	12,491	Low
Dateland fine sandy loam	7,037	Low
Gachado very gravelly loam	8,496	Low - Moderate
Gadsden clay	21,326	High
Gilman loam	1,213	Low
Glenbar silty clay loam	14,938	Moderate
Harqua-Tremont complex	115,695	Low - Moderate
Holtville clay	25,060	Low - High
Indio silt loam	76,051	Low
Indio silt loam, saline	10,149	Low
Indio silt loam, strongly saline	5,722	Low
Indio-Lagunita-Ripley Complex	54,577	Low
Kofa clay	9,016	Low - High
Lagunita loamy sand	10,551	Low
Lagunita silt loam	2,228	Low
Laposa-Rock outcrop 15- 75% slopes	101,914	Low
Ligurta-Cristobal complex 2-6 % slopes	201,384	Low-Moderate
Pits, barrow	1,079	Low
Pits, gravel	149	Low
Ripley silt loam	14,285	Low
Rositas sand	53,135	Low
Rositas-Ligurta complex 2-6 % slopes	18,244	Low
Salorthids, nearly level	2,434	Low
Superstition sand	42,440	Low
Superstition complex	2,433	Low-High
Torrithents-Torrifluvents complex 1-50 % slopes	26,717	Variable Low-High
Tremant-Rositas complex	52,581	Low-Moderate
Vint loamy fine sand	5,714	Low
Wellton loamy fine sand	16,542	Low
Wellton-Dateland-Rositas complex	7,802	Low

Source:
Soil Survey of Yuma-Wellton Area, December 1980. United States Department of Agriculture Soil Conservation Service.

Section Eight—Water Resources Element

8.1 Introduction

Yuma County is located in one of the most arid regions of the United States. The most populated portions of the county receive on average less than three inches of rain annually. Despite this, Yuma County is home to over 200,000 people and a $3 billion agricultural sector operating on over 195,000 acres and is one of the most productive and important in the nation. Maintaining adequate water resources and access to them is fundamental to the continuing viability and prosperity of Yuma County.

Recognizing the importance of adequate water resources Arizona Revised Statutes §11-804(B)(3) mandates that a county's comprehensive plan address:

- The known legally and physically available surface water, groundwater and effluent supplies
- The demand for water that will result from future growth projected in the county plan, added to existing uses
- An analysis of how the demand for water that will result from future growth projected in the comprehensive plan will be served by the water supplies

The Water Resources Element of the Yuma County 2020 Comprehensive Plan will address these issues. This element is comprised of six Sections:

- Surface Water
- Groundwater
- Community Water Systems
- Water Adequacy
- Water Resources Policies and Priorities
- Water Resources Actions
-

The surface water section examines the surface water resources that are available in Yuma County. The Colorado River is by far the most important water resource and the only surface water resource of note in Yuma County. 72% of total county residents and more than half of residents in the unincorporated portions have their drinking water originate from the Colorado River. The agricultural sector upon which the area's economy is built is almost exclusively irrigated with water coming from the Colorado River. The U.S. Bureau of Reclamation is the agency charged with managing the Colorado River and how water coming from it may be used. The Water Resources element details who, where and how Colorado River water can be used. If future growth occurs in the apportioned locations, existing entitlements to Colorado River water should be able to support future growth in Yuma County for the foreseeable future.

The community water system section details the community water systems that exist in Yuma County, where they obtain their water from, what population they serve and the issues facing them. The U.S. Environmental Protection Agency (EPA) defines a community water system as a public water system that serves at least fifteen service connections used by year-round residents or regularly serves at least 25 year-round residents. In Yuma County there are 33 community water systems, eight publicly owned and 25 privately owned. The EPA estimates

that combined these systems serve approximately 181,000 people, which represents appximately 89% of the estimated population of Yuma County.

The water adequacy section details the state and county policies that are designed to ensure that all newly platted subdivisions have an adequate supply of safe drinking water. This section also lists all the platted subdivisions within unincorporated Yuma County that the Arizona Department of Water Resources determined to have an inadequate supply of water.

The water resources polices and priorities section contains the policy positions and priorities of Yuma County regarding water resources within unincorporated Yuma County. The water policies and priorities contained within the Yuma County 2020 Comprehensive Plan are derived from comments and feedback from residents from across the county, comments from stakeholders, and from the requirements of Arizona Revised Statutes §11-804(B)(3). All official actions taken by Yuma County regarding water resources should be in harmony with these policies and priorities. Further, when other agencies request Yuma County's comment or recommendation on any water related policy or project, Yuma County's response will reflect as much as possible these policies and priorities. Yuma County will support the applications of grants, projects and policy changes that will further advance these polices and priorities.

The water resources actions section contains the specific actions that Yuma County will take to advance the adopted water resources polices and priorities.

Colorado River

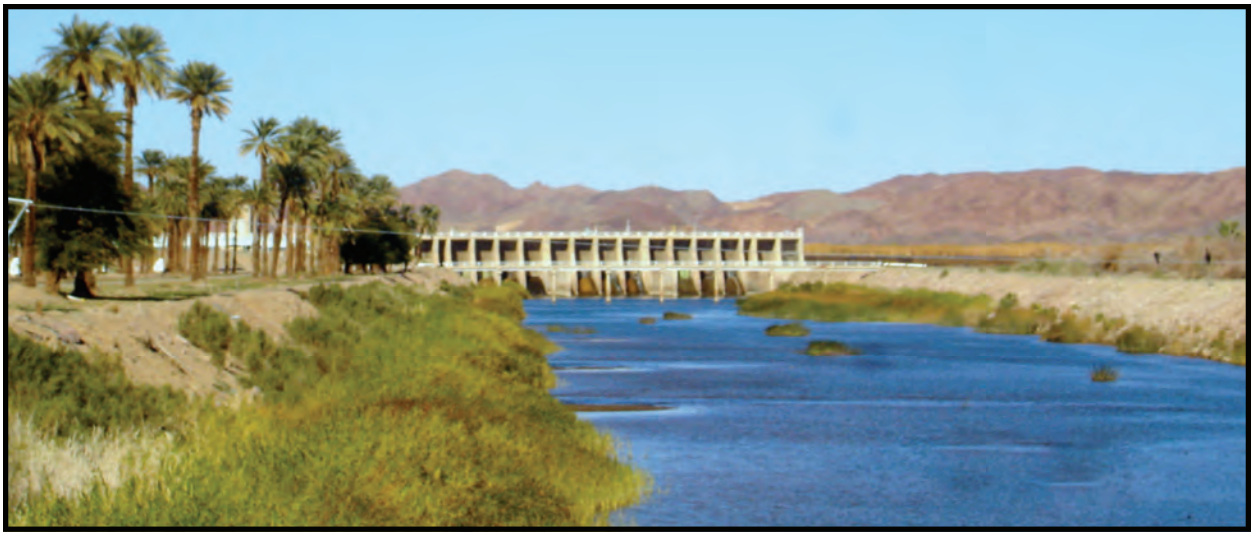
8.2 Surface Waters

The Colorado River is the greatest asset that Yuma County possesses. For the six irrigation districts and various other entities that also have Colorado River water allocations, the cumulative allocation for Yuma County is over 923,000 acre feet per year. Yuma County was one of the first areas to begin using Colorado River water and for this reason Yuma County's entitlements are among the most senior, and therefore, the most secure of all those along the river.

Nearly all Colorado River water used in Yuma County is diverted at Imperial Dam into a network of approximately 226 miles of canals. These canals are operated by six irrigation and drainage districts. In addition to their primary function of providing irrigation, water for municipal and industrial use is supplied to a number of municipalities and private water systems through this system of canals.

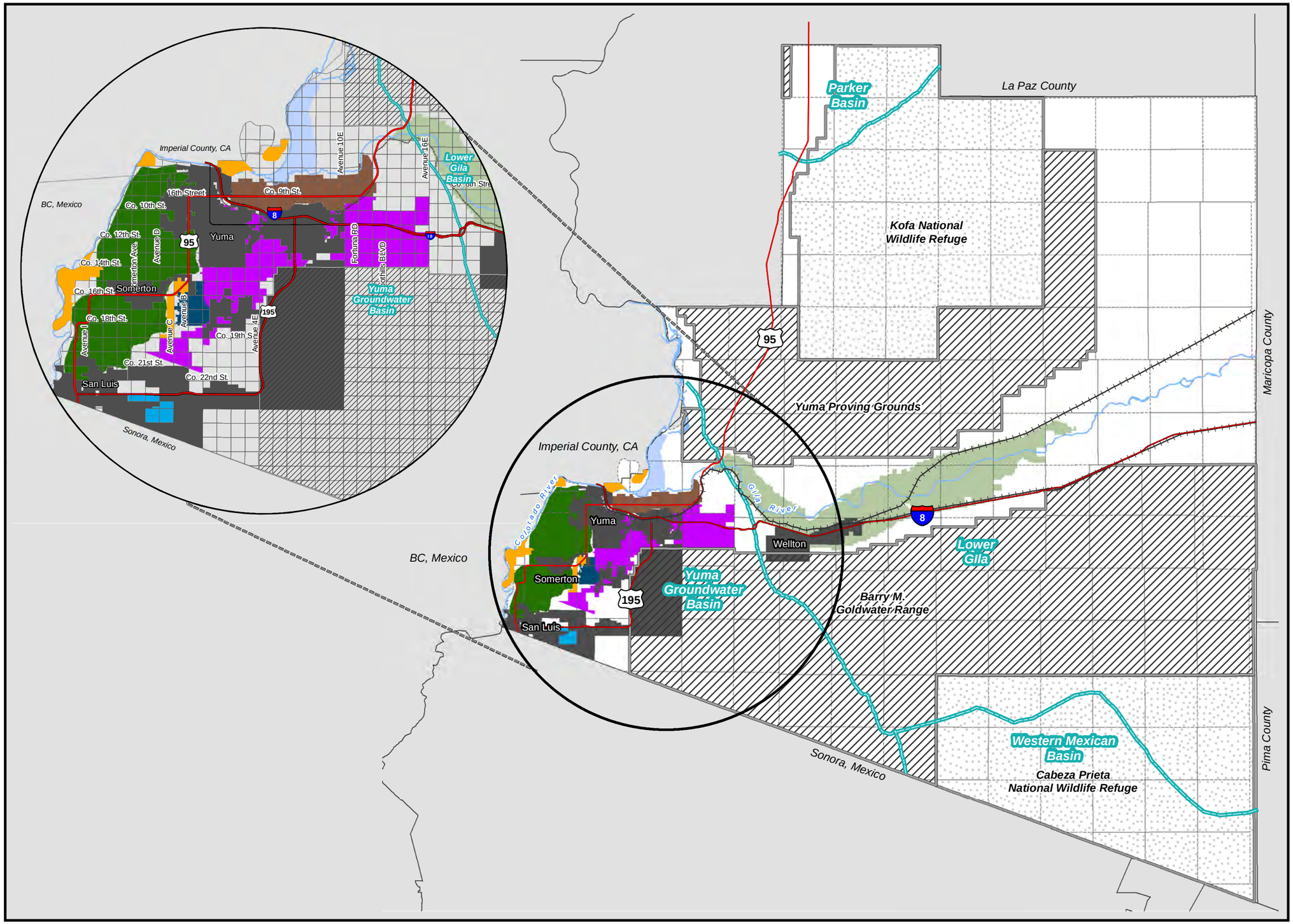
The Gila River enters Yuma County from the east and flows westward until it joins with the Colorado River in the vicinity of the City of Yuma. Prior to the completion of Gillespie and Painted Rock Dams in the first half of the twentieth century, the Gila River was a perennial stream within Yuma County. It is now an ephemeral stream. Water only flows in response to the discharge of agricultural drainage, a heavy precipitation event or if water is released from Painted Rock Dam. Depending on these events, flow in the Gila River can range from non-existent to quite extensive.

There are a great number of washes, both named and unnamed, in Yuma County. These are ephemeral streams that only have running water in them after a significant rain event. Their contribution to the available surface water resources in Yuma County is negligible. The potential hazard posed by washes is not negligible; heavy rains can flash flood within them and pose a risk to life and property.



Imperial Dam

Water Resources Elements - Surface Waters



YUMA COUNTY ARIZONA

- Groundwater Basing Boundary
- Indian Reservations
- Military Boundary
- Incorporated Areas
- National Wildlife Refuge
- Hillander "C"
- North Gila Irrigation District
- Unit B Irrigation District
- Wellton-Mohawk Irrigation And Drainage District
- Yuma County Water Users Association
- Yuma Irrigation District
- Yuma Mesa Irrigation And Drainage District

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division & ADWR

Date: June, 2011

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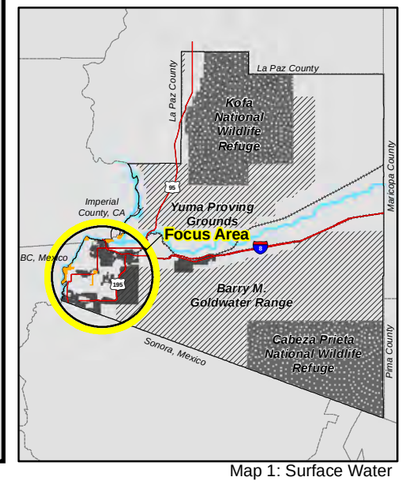


Map 1: Surface Water

Colorado River

How it is used and who can use water from the Colorado River is governed by what is known as the "Law of the River." The Law of the River is a collection of compacts, federal laws, court decisions and decrees, contracts and regulatory guidelines that determine how and who can use Colorado River water. Because Yuma County is so dependent on Colorado River water, an understanding of the Law of the River and how it relates to Yuma County is key to understanding water resource allocation and distribution in Yuma County.

The most important function of the Law of the River is that it portions out water from the river to specific entities and then assigns a priority to these entitlements based on when they were initially established. Entitlements are contracts between the holder and the Secretary of the Interior acting through the Bureau of Reclamation. All combined the entitlement holders in Yuma County hold an entitlement of 923,091 acre feet per year. Yuma County entitlements tend to be high in priority, with 99% being a first, second or third priority entitlement. The bulk of entitlements held in Arizona outside of Yuma County are classified as fourth priority or lower. Were a water shortage to become so severe that not all Colorado River entitlements would be able to be filled, any potential shortage would be borne by the lowest priority entitlements. With continued sound stewardship water resources should be both sufficient and secure for decades to come.

In 2009, the Bureau of Reclamation reported that combined consumptive use of 649,754 acre feet, meaning that water users in Yuma County used approximately 70% of the 923,091 acre feet per year of Colorado River water that they were entitled to use. For both physical and legal reasons, the acreage that is irrigated by Colorado River water is unlikely to expand in the future. Unless there is a shift to agriculture practices and crops that consume a great deal more water than what currently exists, the largest user of Colorado River water in Yuma County, the agricultural sector, is unlikely to use significantly more water in the future. Potentially much of the unused entitlements in Yuma County could be used to support non-agricultural development.

Approximately 87.4% of entitlements in Yuma County are held by five irrigation and drainage districts. These districts were set up to make productive use out of the river water that was made deliverable by the Bureau of Reclamation's completion of the Yuma and Gila Projects. The Yuma and Gila Projects were federal projects in the first half of the twentieth century that built the dams, canals, pumping plants and drains that makes up the irrigation infrastructure of Yuma County. The primary function of these districts is to provide water for agricultural uses. Each entitlement that is held by an irrigation district generally sets aside a portion of water for municipal and industrial use; Table 1 on page 8 lists the portions of the irrigation districts' entitlements that are set aside for municipal and industrial purposes.

The municipal and industrial portion of an irrigation district's entitlement may only be used within that district's boundaries and at the discretion of that district's governing board. Usually municipal and industrial water is treated and distributed by a community water system which can be privately or publically owned. Community water systems either have their own entitlement to Colorado River water such as the City of Yuma, or they purchase a portion of entitlement holder's municipal and industrial allocation. Far West Water and Sewer, which supplies water to approximately 30,000 people in the Foothills area purchases approximately 5,000 acre feet of river water a year from the Yuma Mesa Irrigation and Drainage District. Six community water systems obtain their water by purchasing it from an irrigation district.

Municipal and industrial (M&I) entitlements are what support non-agricultural uses of water. Between M&I entitlements held by the irrigation districts, municipalities and other entities such as Marine Corps Air Station Yuma and YPG, there is a total of 100,824 acre feet per year of Colorado River water that is entitled to be used for municipal and industrial use in Yuma County. In 2009 Bureau of Reclamation records show that of this allocation of 100,824 acre feet, there was a consumptive use of 24,100 acre feet of water for municipal and industrial uses. This means that only approximately 24% of water entitled to be used for municipal and industrial in Yuma County was used in 2009 (see Table 2 on page 7). The overall M&I entitlement in Yuma County should be sufficient to accommodate growth for decades to come. However, there is no overall M&I entitlement for Yuma County. Almost every M&I entitlement has a specific geographic boundary in which the water can be used and there are large portions of Yuma County that are not within the boundaries of an entity that holds an M&I entitlement to Colorado River water. Therefore, in order for the existing M&I entitlements to be able support all future growth, this growth must occur in the areas that have the necessary water rights to support it.

Municipal and Industrial Entitlements	
Entitlement Holder	**Acre Feet**
City of Yuma	50,000
Yuma County Water Users' Assoc.	14,701
Wellton-Mohawk Irrig. & Drain. Dist.	12,500
Yuma Mesa Irrig. & Drain Dist.	10,000
Yuma Irrigation District	5,000
Department of Navy, MCAS	3,000
North Gila Valley Irrigation District	2,500
Yuma Proving Ground	1,129
City of Somerton	750
Bureau of Reclamation	490
Desert Lawn Memorial Park Assoc.	360
Desert Lawn Memorial Park	200
City of Yuma (cemetery)	60
Fisher's Landing Water & Sewer	53
Kammann, Inc.	48
City of Yuma (Smucker Park)	33
Total	**100,824**

Table 1: Yuma County Municipal & Industrial Entitlements[1]

The City of Yuma has set up agreements with the holders of various of irrigation water entitlements to convert agricultural use entitlements to municipal and industrial entitlements as agricultural land develops. The primary participant in this type of transfer is the Yuma County Water User's Association. The City of Yuma and the Yuma County Water Users' Association have agreed on a water rights conversion ratio of 5.83 acre feet per year for each acre of land that transitioned from agriculture to another type of land use. The City of Yuma currently holds water conversions of 19,000 acre feet a year in addition to its 50,000 acre-feet a year entitlement to Colorado River water.[2]

The other factor that must be considered when contemplating the location of future growth is the infrastructure needed to deliver water from the Colorado River to any water treatment plant. Currently nearly all water treatment plants that make use of Colorado River water in Yuma County do not directly withdraw water from the river, but rather through the system of irrigational canals. These canals were constructed to support agricultural uses, and therefore agricultural uses take priority when it comes to the finite quantity of water that can be delivered through these canals. Even if an existing M&I entitlement is sufficient to serve an area, this is no guarantee that there is sufficient capacity within existing canals to deliver water to a treatment plant.

1 U.S. Bureau of Reclamation.
2 Public Services Element Draft City of Yuma 2012 General Plan

Entity	Entitlement Priority - In Acre Feet per Year					2009 Consumptive Use in A.F.
	1st	2nd & 3rd	4th	5th or 6th	Total	
Wellton-Mohawk Irrigation and Drainage District		278,000			***278,000***	262,227
Yuma County Water Users' Association	254,200				***254,200***	225,181
Yuma Mesa Irrigation and Drainage District		141,519			***141,519***	71,510
Yuma Irrigation District		67,278			***67,278***	36,648
North Gila Valley Irrigation District	24,500	41,203			***65,703***	12,224
City of Yuma	1,478	48,522			***50,000***	15,407
Imperial National Wildlife Refuge		28,000			***28,000***	912
Cocopah Indian Reservation	8,821		2,026		***10,847***	4,039
Gila Monster Farms, Inc.	780	6,285	1,435	656	***9,156***	4,518
Yuma Auxiliary Project (Unit B)	6,800				***6,800***	13,467
Others		905	2,403		***3,308***	NA
MCAS Yuma		3,000			***3,000***	1,578
APS - Yucca Power Plant				1,500	***1,500***	330
Yuma Proving Ground		1,129			***1,129***	873
University of Arizona Extension		1,088			***1,088***	597
City of Somerton			750		***750***	0
Desert Lawn Memorial Park		200	360		***560***	90
Yuma Union High School		200			***200***	113
Fisher's Landing Water and Sewer Works			53		***53***	40
Total	***296,579***	***617,329***	***7,027***	***2,156***	***923,091***	***649,754***

Table 2: Colorado River Entitlements and 2009 Consumptive Use[2]

[2] U.S. Bureau of Reclamation.

8.3 Groundwater

The overwhelming majority of Yuma County and all of its inhabited areas are contained either in the Yuma or Lower Gila Groundwater Basins. The Lower Gila Basin encompasses most of the County east of the Gila Mountains. According to the Arizona Department of Water Resources, well yields in this basin are generally greater than 1,000 gallons per minute, and the natural recharge rate for the entire basin is estimated to be from 9,000 to 88,000 acre feet a year. The Yuma Basin comprises most of the County west of the Gila Mountains. Well yields in this basin are generally greater than 2,000 gallons per minute, and the natural recharge rate for the entire basin is estimated at 213,000 acre feet a year.[3]

Depending on the location of a well there are a number of potential issues regarding groundwater quality that could potentially cause a well to produce water that is not up to drinking water standards without additional treatment. In eastern Yuma County the main issue is excessive amounts of fluoride and/or arsenic from natural occurring mineral sources. In the Wellton-Mohawk Valley the maximum limit for total dissolved solids is often exceeded due to the salts carried into the water table from irrigation water. Some wells west of the Gila Mountains have exceeded the maxim allowed amount of volatile and semi-volatile organic compounds which likely come from both urban and agricultural uses. Map 2 shows the locations of wells where the Arizona Department of Water Resources (ADWR) has recorded an exceedance of drinking water standards for at least one contaminate.

Historically the availability of groundwater has not been an impediment to development in Yuma County. Most development and agriculture in Yuma County makes use of surface water and not groundwater. Between 1973 and 2008, nineteen subdivisions were platted in unincorporated Yuma County despite the ADWR determining that they had an inadequate water supply. Nor has the ADWR designated any of Yuma County as an active management area in which groundwater rights are quantified and regulated. ADWR defines active management areas as areas with heavy reliance on mined groundwater, i.e. groundwater which is not naturally replenished once withdrawn.

The rules for well placement in Yuma County are largely written by the Arizona Department of Water Resources and enforced by the Yuma County Environmental Programs Division. There are two specifically defined locations in Yuma County where the Bureau of Reclamation has created additional regulations and restrictions on how groundwater can be used.

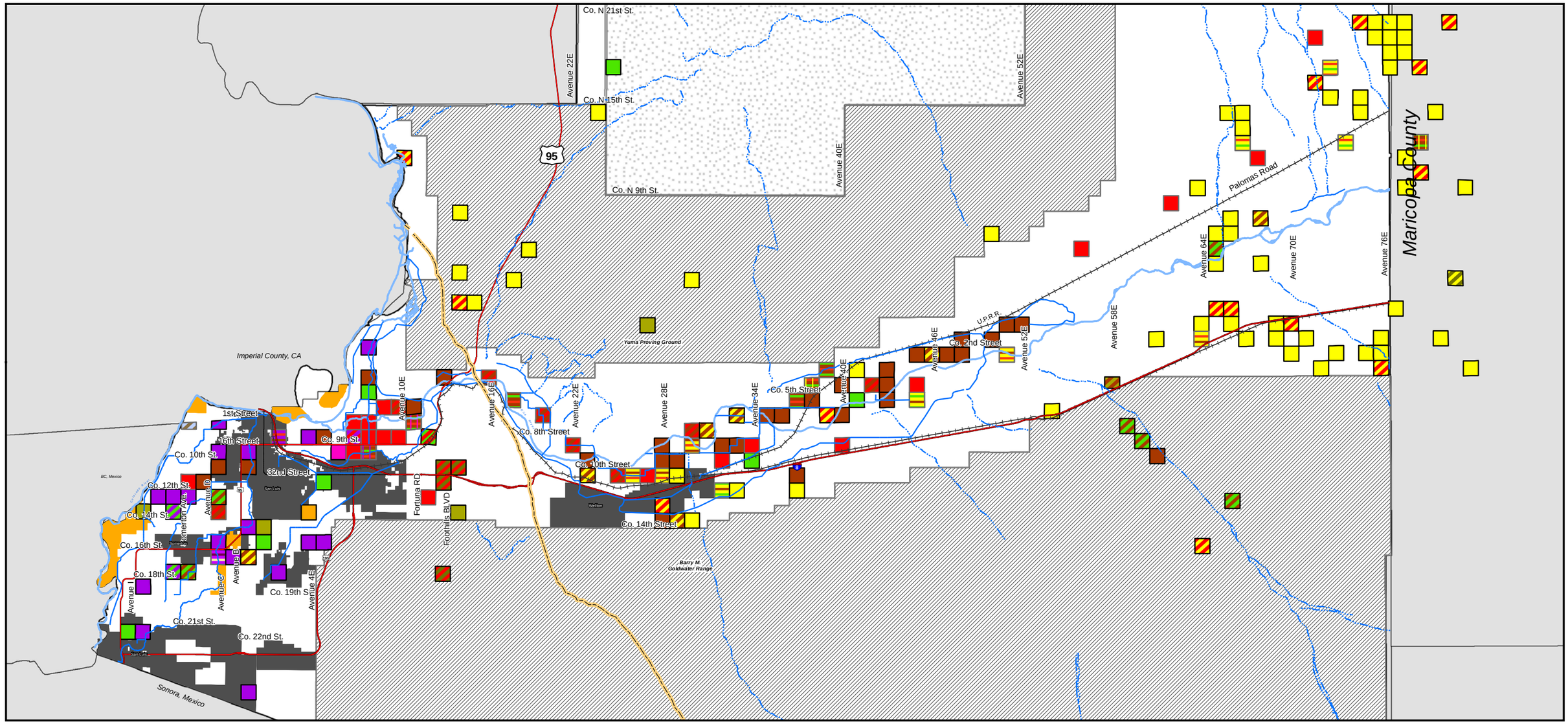
The ADWR classifies all wells within Yuma County as either exempt or non-exempt. Regulations differ depending on the type of well. An exempt well has a maximum pump capacity of 35 gallons per minute. Typical uses include non-irrigation purposes, non-commercial irrigation of less than two acres of land and watering stock. Most exempt wells are used for residences and are more than adequate for household use.

A Notice of Intention to Drill form (NOI) must be filed with the Arizona Department of Water Resources for all wells drilled in Yuma County. If the well is intended for non-domestic purposes, as defined in Title 45-454, or it will be used for domestic purposes and the size of the property upon which the well will be constructed exceeds five acres the NOI shall be filed with the Director of Water Resources.

[3.] Arizona Department of Water Resources. "Arizona Water Atlas, Volume 7, Lower Colorado River Planning Area." November 2009

If the well is intended for domestic purposes, as defined in Title 45-454, and the size of the property upon which the well will be constructed is less than 5 acres, the NOI and site plan must be submitted to the Yuma County Environmental Programs Division to ensure compliance with well placement and septic tank requirements. State law requires a 100 foot separation between a well and any septic tank or sewer system and that a parcel containing both a well and an onsite sewage treatment system is at least one acre in size.

Water Resources Element - Groundwater Quality



YUMA COUNTY ARIZONA

- Arsenic (As)
- Fluoride (Fl)
- TDS (Total Dissolved Solids)
- Volatile, Semi Volatile Compounds (Org)
- Nitrate (NO3)
- Lead (Pb)
- Cadmium (Cd)
- As, F
- As, F
- As, NO3
- As, Pb
- As, TDS
- As, Org
- F, TDS
- F, TDS
- F, Pb
- TDS, Pb
- NO3, TDS
- NO3, Org
- Be, Cd
- As, F, TDS
- As, F, NO3
- As, TDS, Org
- As, NO3, TDS
- F, NO3, TDS
- Org, Sb, Be
- As, F, NO3, TDS
- As, F, NO3, TDS
- As, NO3, TDS, Org
- AS, NO3, TDS, Thallium
- As, Beryllium, F, Pb, NO3, TDS
- Groundwater Basin Boundary
- Major Washes
- Major Canals
- Rivers

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Yuma County Dept. of Development Services
Source: Yuma County GIS Division

Date: July, 2011

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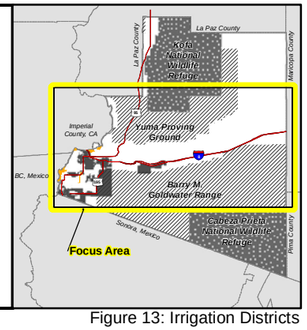


Figure 13: Irrigation Districts

8.3.a Depth to Groundwater

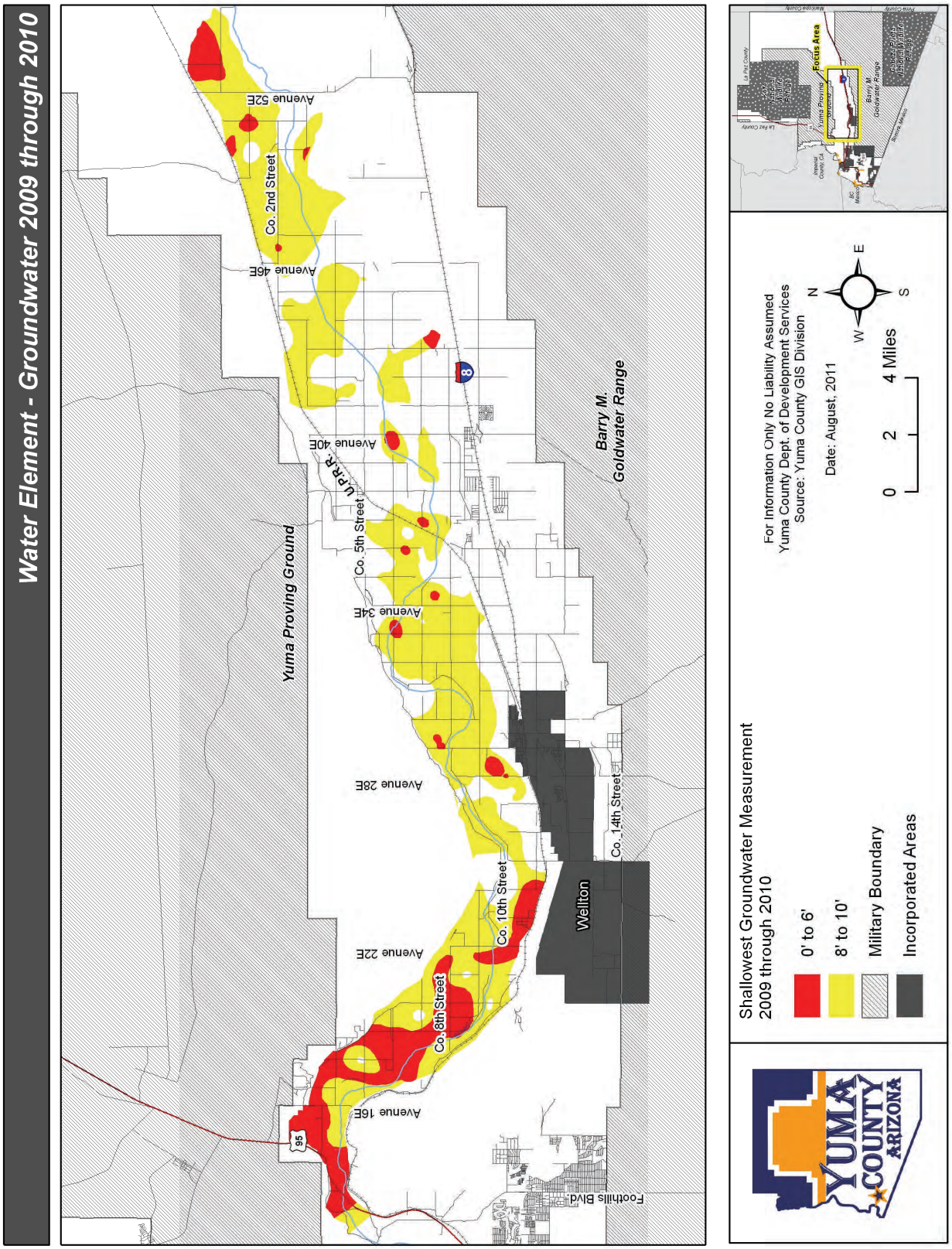
Depth to groundwater is an important issue in many parts of Yuma County. The water table in the Yuma, Gila and Wellton-Mohawk Valleys is naturally high due to the influence of local rivers. Map 3 and 4 highlight the areas in which high groundwater is a concern. The river valleys are where the best farmland is located and as a result a large amount of irrigation water is used in these areas which causes an already high water table to rise further. Without the active management of groundwater levels there would be areas in which groundwater would breach the surface. Even with active groundwater elements there are areas in Yuma County where during certain times of the year the water table comes within a few feet of the surface.

West of the Gila Mountains groundwater levels are managed through the Bureau of Reclamation's Yuma Area Water Management System. This system is comprised of 97 groundwater pumping facilities, 57 observation wells and 13 drainage canals. In the Wellton-Mohawk Valley this task is performed by the Wellton-Mohawk Irrigation and Drainage District. These systems of pumps and drains are used to extract and to discharge excess groundwater through a network of drainage canals in order to prevent damage to buildings, foundations, crops, roads and septic systems.

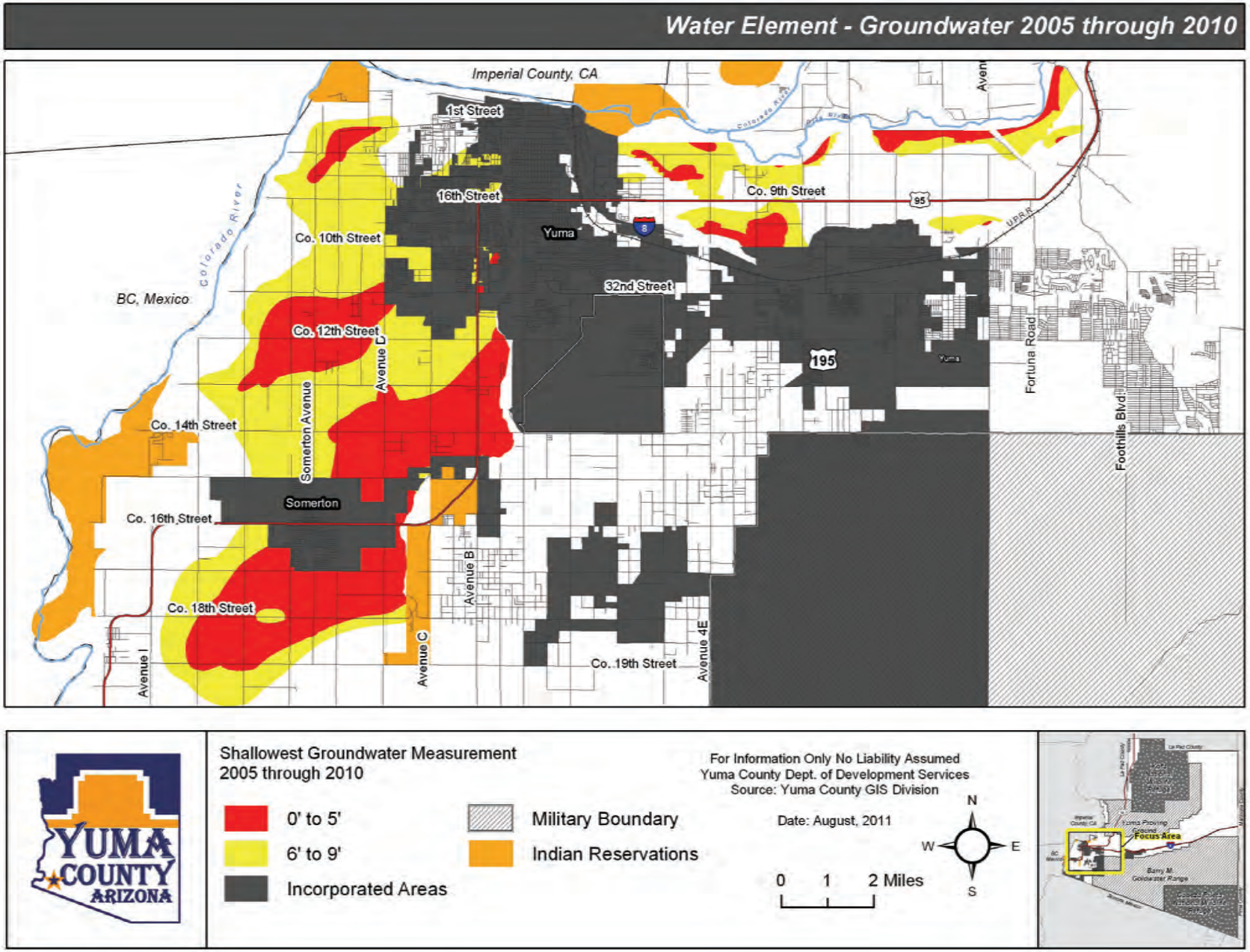
Because depth to groundwater is such an important issue in the Yuma, Gila and Wellton-Mohawk Valleys , the Yuma area Office of the Bureau of Reclamation closely tracks groundwater levels in these areas. Using data from drainage and observation wells, the Bureau of Reclamation publishes monthly maps showing the depth to groundwater in the Yuma, Gila and Wellton-Mohawk Valleys. These maps can be found on the webpage of the Yuma Area Office of the Bureau of Reclamation, http://www.usbr.gov/lc/yuma/programs/YAWMS/GROUNDWATER_maps.cfm

The maps on the following two pages is a composite of the Bureau of Reclamation's monthly depth to groundwater maps. Depth to groundwater in the valleys can vary greatly month to month largely driven by seasonal patterns in irrigation. Each month's depth to groundwater map is unique. Because of this a full understanding of groundwater cannot be gained by examining a single month's groundwater map. The maps depict the areas with a depth to groundwater of 0 feet to 5 feet and areas with a depth to groundwater of 6 feet to 9 feet measured between 2009 and 2011. Map 4 depicts the highest measured groundwater level for a given point between 2005 and 2010, thus mapping all areas where some time over the past five years groundwater levels were recorded at least for one month to be a level that could potentially be problematic.

Drainage Well Discharging into a Drain



Map 3: Depth to Groundwater 2009 through 2010

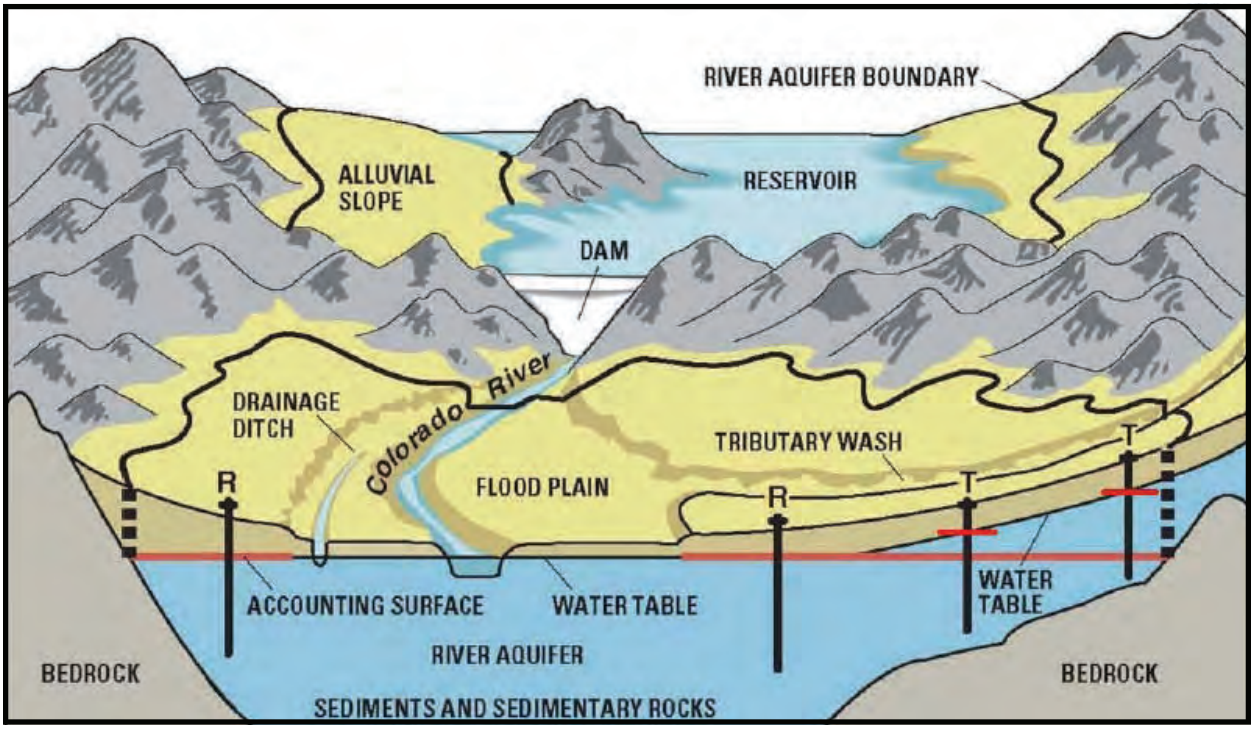


Map 4: Depth to Groundwater 2005 through 2010

8.3.b Colorado River Aquifer

In some areas located near the Colorado River, water pumped from a well is replaced by water from the Colorado River. In many cases the owners of these wells do not hold entitlements to Colorado River water. The Bureau of Reclamation estimates that in the lower Colorado River basin wells pumping Colorado River water without an entitlement consume 9,000 to 15,000 acre feet of water a year. In order to ensure the long-term sustainability of the lower Colorado River and to protect the water rights of Colorado River water entitlement holders, the Bureau of Reclamation has developed a river aquifer/accounting surface methodology to identify areas in which wells are pumping Colorado River water. The river aquifer is divided into two classifications: the floodplain where all water being pumped is presumed to be Colorado River and the accounting surface where wells are capable of withdrawing Colorado River water. Wells in the accounting surface are assumed to be withdrawing river water if their static water elevation is at or below the accounting surface elevation.[6]

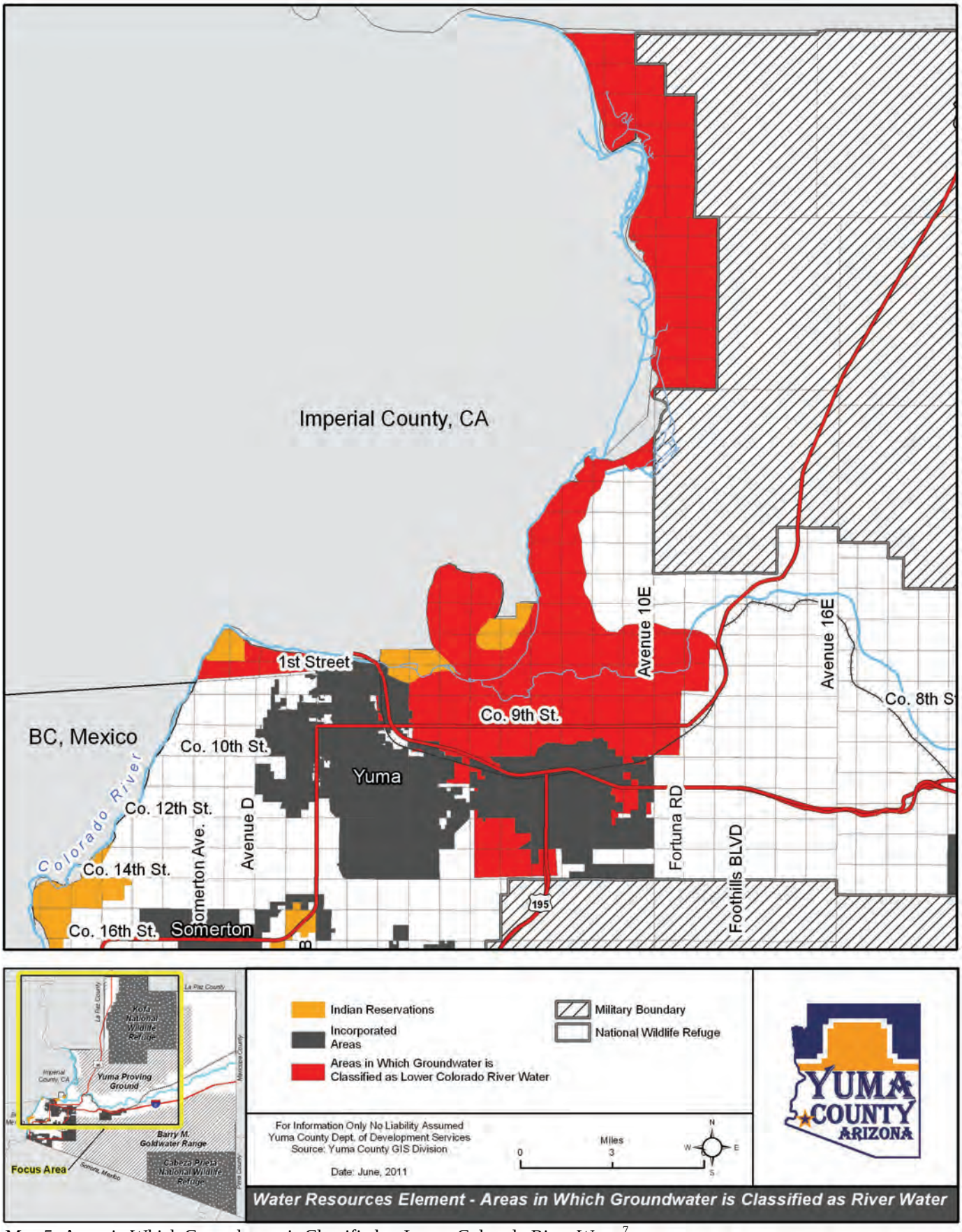
In much of southern Yuma County, groundwater flows underground across the southern international boundary (where the Colorado River crosses completely into Mexico, just west of San Luis) or under the Colorado River south of the northern international border (the point where the river first starts to form the international boundary). This ground water cannot be used to satisfy delivery obligations to Mexico under the Mexican Treaty. Therefore wells in this area are exempt from restrictions on pumping Colorado River water. Map 4 shows the areas where the pumping of groundwater is restricted due to it's classification as Colorado River water.



Schematic diagram showing the river aquifer and accounting surface (red line) of the lower Colorado River. Wells labeled "R" have a static water-level elevation equal to or below the accounting surface and are presumed to yield water that will be replaced by water from the river. Wells labeled "T" have a static water-level elevation above the accounting surface and therefore presumed to not be pumping river water. (Modified from Wilson and Owen-Joyce, 1994)[6]

[6] Thayer, Ruth. "Regulating the Use of Colorado River Water Without an Entitlement." U.S. Bureau Reclamation.

A.R.S. §45-596.01, which takes effect as soon as the Bureau of Reclamation finalizes its rules regarding pumping groundwater from the Colorado River aquifer, is intended to implement these restrictions on pumping Colorado River water. It requires a person who files a notice of intention to drill a well that will pump Colorado River water to include proof that they have the legal right to use Colorado River water with either an entitlement to use river water or a written agreement with an entity such as an irrigation district to use a portion of their entitlement. Map 5 shows the areas in Yuma County where this applies. A.R.S. §45-596.01 does not apply if the proposed well has a maximum capacity of less than thirty-five gallons per minute and will be used for the supply, service and activities of households and private residences, including the application of water to less than two acres of land to produce plants or parts of plants for sale or human consumption or for use as feed for livestock, range livestock or poultry.



Map 5: Areas in Which Groundwater is Classified as Lower Colorado River Water[7]

[7]43 CFR Part 415. Regulating the Use of Lower Colorado River Water Without an Entitlement; Proposed Rule

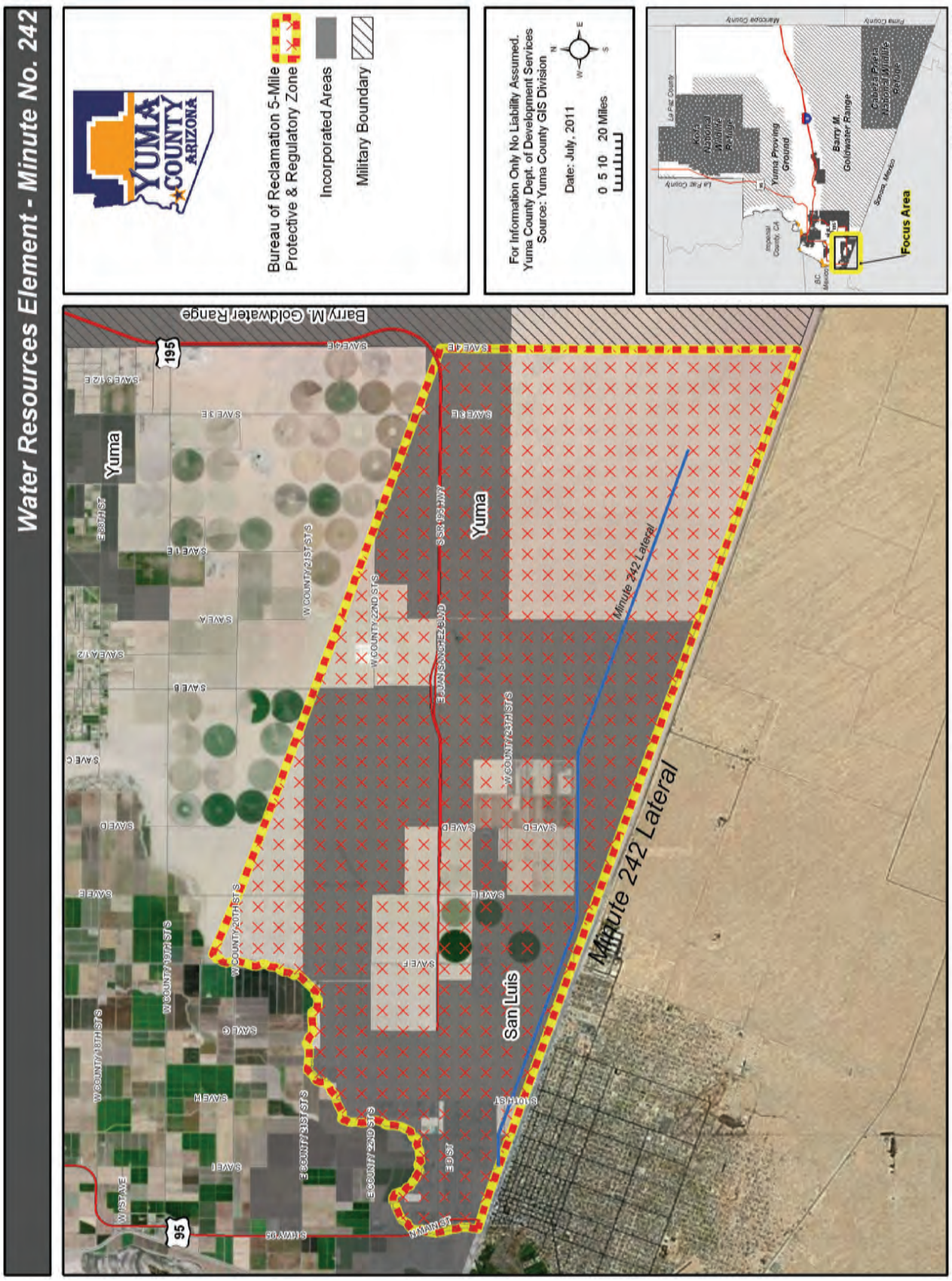
8.3.c Minute No. 242

The Mexican Water Treaty of 1944 guaranteed an annual volume of Colorado River waters to Mexico of 1,500,000 acre-feet (1,850,234,000 cubic meters). Minute No. 242 (Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River) is an agreement signed between the United States and Mexico in 1973 which required the approximately 1,360,000 acre-feet delivered to Mexico upstream of Morelos Dam have an average salinity of no more than 115 p.p.m. $\pm$ 30 p.p.m. U.S. count (121 p.p.m. $\pm$ 30 p.p.m. Mexican count) over the annual average salinity of Colorado River waters which arrive at Imperial Dam. Additionally, it guarantees Mexico the delivery of 140,000 cubic feet of water where the Colorado River crosses entirely into Mexico just west of San Luis. Minute No. 242 also limits the quantity of water allowed to be pumped within five miles of the Arizona-Sonora boundary to 160,000 acre feet annually. A similar restriction exists on the Mexican side of the border.

To meet the obligations of Minute No. 242, the Bureau of Reclamation (BoR) established the Five Mile Protective and Regulatory Zone (see Map 6) and Protective and Regulatory Pumping Unit. The protective and regulatory zone was established to ensure that no more groundwater than is allowed under Minute No. 242 is pumped from the area. To this end, the Bureau of Reclamation acquired 23,500 acres of land in this area, representing the majority of land in the Five Mile Protective and Regulatory Zone. These actions limit any potential development in the area.

In order to take advantage of irrigation drainage water flowing under the Yuma Mesa and to ensure that the required deliveries of water are made to Mexico, the Bureau of Reclamation constructed the 242 Well Field. The 242 Well Field is a series of 21 wells located near the international border that pump approximately 125,000 acre feet of groundwater into the 242 lateral for delivery to Mexico every year.[8]

[8] U.S. Bureau of Reclamation



Map 6: Bureau of Reclamation 5-Mile Protective & Regulatory Zone

8.4 Community Water Systems

The U.S. Environmental Protection Agency (EPA) defines a community water system as *a public water system that serves at least fifteen service connections used by year-round residents or regularly serves at least 25 year-round residents.* In Yuma County there are 33 community water systems (see Table 4 on page 23); eight publicly owned and 25 privately owned. The EPA estimates that combined these systems serve approximately 181,000 people, which represents approximately 89% of the estimated population of Yuma County. The remaining 11% obtain their drinking water from private wells or from water systems too small to be classified as a community water system. Nine community water systems which are either primarily or only supplied with surface water, serve approximately 146,000 people, about 72% of the estimated total population of Yuma County.

Of the 33 community water systems, 25 of them are small, serving populations of less than 1,000; of these 20 serve a population smaller than 500. Most of these serve a single entity such as a recreational vehicle park or a single subdivision. Smaller community water systems, often the only feasible way of providing drinking water to a particular development, are the cause of some the most challenging issues regarding drinking water in unincorporated Yuma County. Because they have such a small customer base, many of these smaller community water systems have difficulty obtaining the capital needed to make improvements that are needed to maintain and improve reliability and water quality.

The reliability and quality of water coming from various small community water systems, particularly those relying on groundwater, was identified as a key issue by members of the public during the process that gathered the information used to draft the Yuma County 2020 Comprehensive Plan. Typically the types of improvements needed to address these issues can only be financed through a combination of grants and low-interest loans from the Arizona Water Infrastructure Finance Authority, an entity set up by the State of Arizona to help address these types of issues. The difficulty of funding improvements to small community water systems is the reason that creation of new small community water systems should be avoided, if it all possible.

A Small Community Water System in Unincorporated Yuma County

System	*Source*	*2009 Acre-Feet Consumptive Use*	*Population Served*
Yuma, City of	Surface Water	18,818	103,264
Far West Water Co.	YMIDD & Groundwater	YMIDD-5,168.55 Pumped-799.46	32,425
San Luis, City of	Groundwater	3,531.00	15,000
Somerton, City of	Groundwater	1,412.20	11,242
USMC-Air Station-Main	Surface Water	772.7	6,234
AZ. Dept of Corrections-Yuma	Groundwater	No Data	2,850
Wellton, Town of	WMIDD	314	2,025
US Army YPG - Main	Groundwater & Surface Water	673 - Surface Water	1,500
Sierra Pacific Mobile	Groundwater	8	816
Orange Grove Water Co.	Groundwater	101.94	800
Gadsden Water Company	Groundwater	14	756
Hidden Shores RV	Surface Water	43	512
Tierra Mesa Estates Water	Groundwater	172	468
Fishers Landing Inc	Surface Water & Groundwater	3.71	402
El Prado Water Company	Groundwater	35.35	400
Orange Grove Elementary School	Groundwater	No Data	400
Antelope Union High School District	WMIDD	No Data	380
Valley Vista Water Co.	Groundwater	62	300
Mohawk Utility Co.	WMIDD	WMIDD-40.56 Pumped 3.76	250

Table 4: Community Water Systems in Yuma County (Continued on Next Page) [9]

[9] Data obtained from the Arizona Department of Environmental Quality and the Arizona Corporation Commission

System	*Source*	*2009 Acre-Feet Consumptive Use*	*Population Served*
Tacna Water Co.	WMIDD	50	240
Laguna MHP	Groundwater	No Data	235
Green Acres Water Co.	Groundwater	41.32	210
Antelope Water Co.	WMIDD	54.31	200
Mohawk Valley School District	WMIDD	No Data	200
Dateland Elementary School	Groundwater	No Data	200
Shepard Water Co.	Groundwater	42.08	200
Dateland Public Service	Groundwater	41.57	125
Sun Leisure Estates Utility Co.	Groundwater	14	116
Sun-Set Mobile Trailer	Groundwater	1	100
River Ranch RV Park	Groundwater	No Data	100
G & L Mobile Park	Groundwater	102	90
Lucky Park Del Sol	Groundwater	No Data	90
Jones Co-op Water	Groundwater	9	84
Arizona West MH	Groundwater	No Data	66
Lemon Tree Trailer Park	Groundwater	11.4	60
Rancheros Bonitos	Groundwater	No Data	60
Dateland Water L.L.C.	Groundwater	3.31	40
Wellton-Mohawk Irrigation and Drainage District	WMIDD	No Data	36

Table 4: Community Water Systems in Yuma County [10]

[10] Data obtained from the Arizona Department of Environmental Quality and the Arizona Corporation Commission

8.5 Water Adequacy

The Arizona Department of Water Resource (ADWR) Adequate Water Supply program was created in 1973 as a consumer protection program. As a result of this legislation developers of subdivisions are required to obtain a determination from ADWR concerning the quantity and quality of water available before the Arizona Department of Real Estate will allow any lot sales. If the application for a Water Adequacy Report successfully demonstrates that water of sufficient quality will be physically, legally and continuously available for the next 100 years, then the Arizona Department of Water Resources will determine the water supply to be adequate. The exact requirements for determination of adequacy can be found in Title 12, Chapter 15, Article 7 of the Arizona Administrative Code. If the water supply is determined to be inadequate, the developer may still sell lots, but the inadequate determination must be disclosed to potential buyers in the public report approved by Arizona Department of Real Estate and in all promotional materials. If a provider with a Designation of Adequate Water Supply will serve the proposed subdivision, then the developer only has to provide a written commitment of service from the designated provider.[11]

In 2007 the legislature passed Senate Bill 1575 which, among other things, provides clear authority for cities, towns and counties to adopt an ordinance requiring new subdivisions to obtain a determination of an adequate 100-year water supply from the Arizona Department of Water Resources in order to obtain final plat approval from the local platting authority. On July 7, 2008 the Yuma County Board of Supervisors made use of this newly granted authority and added Section 4.31—Water Adequacy to the Yuma County Subdivision Regulations. This section requires as of August 10, 2008 that all subdivisions being platted in Yuma County obtain a determination of water adequacy from the Arizona Department of Water Resources prior to a final plat being issued. This requirement applies to all of Yuma County and not just the unincorporated portions of the County.[11]

Between 1973, when the Adequate Water Supply program was started, and August of 2008, a total of 19 subdivisions that were platted in unincorporated Yuma County were given a determination of inadequate water supply by the Arizona Department of Water Resources (see Table 6 on page 26). The most common reason for a finding of inadequacy was insufficient data meaning that the applicant chose not to submit necessary information or the available hydrologic data was insufficient to make a determination. Seven subdivisions were found to have an inadequate supply of water because the source of water identified did not meet drinking water quality standards, and the applicant failed to demonstrate provisions to bring this water up to standards.

Nearly all subdivisions that were determined to have inadequate water supply were platted as dry lot subdivisions, which means that individual homeowners are responsible for drilling their own wells and for the quality of water produced by these wells.

[11] Arizona Department of Water Resources.

Subdivision Name	Location			No. of Lots	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination	Date	Water Provider at Time of Application
	Township	Range	Section					
Arletta Estates	9 South	19 West	14	8	Inadequate	C	02/05/75	Dry Lot Subdivision
Caballo Farms	6 South	15 West	31	60	Inadequate	C	05/19/75	Dry Lot Subdivision
Crystal Sands	7 South	13 West	12, 13	15	Inadequate	C	07/01/74	Dry Lot Subdivision
New Tacna Townsite	8 South	17 West	25	10	Inadequate	C	01/15/87	Tacna Water Company
Orange Grove Ranch Estates	9 South	18 West	3	122	Inadequate	C	01/15/75	Dry Lot Subdivision
Rio Salado Ranches 1 & 2	6 South	11 West	24, 25	116	Inadequate	D	03/14/74	Dry Lot Subdivision
4E Industrial Park	9 South	23 West	13	15	Inadequate	A	09/26/2007	Dry Lot Subdivision
Blaisdell	8 South	21 West	21	10	Inadequate	C	02/26/1975	Dry Lot Subdivision
Calli Maya Development	9 South	22 West	22	10	Inadequate	A	09/26/2007	Dry Lot Subdivision
Citrus Business Park	9 South	23 West	13	7	Inadequate	A	08/28/2006	Dry Lot Subdivision
Citrus Business Park Unit 2	9 South	23 West	13	27	Inadequate	A	06/09/2008	Dry Lot Subdivision
Desert Foothills Estates #7	9 South	21 West	10	61	Inadequate	C	09/28/1994	Far West Water Company
Heritage Park	9 South	22 West	18	39	Inadequate	A	01/17/2007	Dry Lot Subdivision
Premier Storage Condominiums	9 South	23 West	12	519	Inadequate	A	10/18/2007	Dry Lot Subdivision
Rancho Bonitos Co-op Park	9 South	22 West	30	121	Inadequate	B	02/15/1987	Ranchos Bonitos Water Co.
Sandy Ranch Subdivision	9 South	22 West	18	34	Inadequate	A	09/27/2007	Dry Lot Subdivision
Sierra Sands, Phase 2	9 South	22 West	31	8	Inadequate	A	09/14/2007	Dry Lot Subdivision
Tuscan Ranch	9 South	23 West	36	36	Inadequate	A	01/29/2007	Dry Lot Subdivision
Yuma Vineyards	9 South	23 West	36	9	Inadequate	A	08/31/2006	Dry Lot Subdivision

Table 5: Subdivisions in Unincorporated Yuma County for which ADWR has Determined the Water Supply to be Inadequate[12]

Reason for Inadequacy Determination

A: Insufficient data (applicant chose not to submit necessary information, and/or available hydrologic data insufficient to make determination)

B: Legal (applicant failed to demonstrate a legal right to use the water or failed to demonstrate the provider's legal authority to serve the subdivision)

C: Water quality

D: ADWR unable to locate records showing why an inadequacy determination was made

[12] Arizona Department of Water Resources. "Arizona Water Atlas, Volume 7, Lower Colorado River Planning Area." November 2009

8.6 Water Resources Policies and Priorities

WRP.1: No new development or policy should degrade the water resources of existing water users and development.

WRP.2: Maintaining Yuma County's existing allocations of Colorado River water is a top priority.

WRP.3: Yuma County's existing entitlement to Colorado River water must be maintained.

WRP.4: All Yuma County residents should have access to high quality and reliably accessible drinking water.

WRP.5: It is preferable for new residential developments to be served with water obtained from existing municipal and industrial portions of Colorado River water entitlements.

WRP.6: Improvements to community water systems to improve the quality and taste of drinking water and to improve the reliability of systems should be constructed.

WRP.7: Land use adjacent to and in the immediate vicinity of major canals that supply irrigation and drinking water should not imperil the quality of water in these canals.

WRP.8: Small community water systems that rely on groundwater are the least desired way to supply drinking water; new systems should not be constructed and existing ones should be linked up with larger systems whenever it feasible.

8.7 Water Resources Actions

WRA.1: Yuma County will continue to prohibit the platting of any new subdivision that has not first obtained a determination of an adequate water supply from the Arizona Department of Water Resources or obtained written commitment of water service from a city, town or private water company that has been designated by the Arizona Department of Water Resources as having an adequate supply of water.

WRA.2: Yuma County will work to continue to identify community water systems that need capital improvements to improve the quality of water that they deliver, and will then work to get these needed projects funded through programs such as the Water Infrastructure Finance Authority's Drinking Water State Revolving fund or any other applicable program.

Section Nine—Safety Element

9.1 Introduction

Both natural- and human-caused disasters pose risks to the health and property of Yuma County residents. The best way to understand and prepare for future disasters is to understand what and where disasters have occurred in the past and where one is most likely to occur again in the future. The simplest way to reduce or avoid impact from a disaster is to avoid being where the disaster strikes. For this reason the Safety Element contains a detailed set of maps that detail the areas in Yuma County most at risk from a variety of disasters and where disasters have occurred in the past. The specific types of disasters that the Safety Element examines are flooding, earthquakes, storms, wildfires and airport-related hazards.

Yuma County recognizes that natural and human-caused hazards pose a significant threat at varying degrees of magnitude and frequency to the safety and economic stability of the county and its residents. For this reason numerous detailed plans, policies, and ordinances regarding hazards to public safety have been adopted by Yuma County. These documents include the *Yuma County Multi-Jurisdictional Hazard Mitigation Plan 2010, Yuma County Wildland Urban Interface Community Wildfire Protection Plan, Floodplain Regulations for Yuma County* and *Article VII—Airport District of the Yuma County Zoning Ordinance.* The intent of the Safety Element is to bring the most important goals, policies and objectives of these documents into one place to allow them be considered in a comprehensive manner together and with all the goals, policies and objectives contained within the Yuma County 2020 Comprehensive Plan.

Because distance and availability from existing public safety infrastructure needs to be a consideration in any future development, maps depicting this are included in the Safety Element. By including a clear set of maps depicting all this in the Safety Element, it helps ensure that such considerations are taken into account in all future development decisions. The Safety Element also identifies an area of the county where increased train traffic combined with limited railroad crossings makes access by emergency vehicles less reliable.

Public participation was the single-most vital element in the creation of the 2020 Yuma County Comprehensive Plan. Multiple public meetings were held by Planning staff at locations all across the County at which the Safety Element and public safety in general were discussed. At these meeting both long and short term issues regarding public safety that residents felt needed to be addressed were gathered. The concerns of residents brought up at these meetings are reflected in the policies and planned actions that are set forth in this element.

The safety policies and priorities section contains the policy positions and priorities of Yuma County regarding public safety within unincorporated Yuma County. The safety policies and priorities contained within Section 9.8 are derived from comments and feedback from residents from across the County, comments from stakeholders and from detailed plans, policies and ordinances regarding hazards to public safety. All official actions taken by Yuma County regarding public safety should be in harmony with these policies and priorities. Further, when other agencies request Yuma County's comments or recommendations on policy or projects that could impact public safety, Yuma County's response will reflect as much as possible these

policies and priorities. Yuma County will support the applications of grants projects and policy changes that will further advance these policies and priorities.

The safety actions section (Section 9.9) contains the specific actions that Yuma County makes in an effort to advance the adopted safety element's policies and priorities.

9.2 Flooding

Flooding or flood-related events are the primary hazard impacting Yuma County. Damaging floods in Yuma County can be primarily categorized as either riverine or local area flows.

Areas that have inadequate drainage can be subject to localized shallow flooding and ponding caused by local area flows. Typically this type of flooding occurs when locally heavy rainfall occurs in a developed area that has no or insufficient drainage infrastructure. With no effective means to be conveyed to a natural drainage way or drain, water may pond in locally low lying areas, potentially causing damage to homes, businesses or infrastructure. In a number of older neighborhoods this type of flooding can impede access to the neighborhood. Identifying areas that are troubled by this type of flooding is one of the duties of the Yuma County Flood Control District. Identification of proposed remedies for areas troubled by localized flooding can be found in the most current version of the Yuma County Flood Control District Annual Assessment Report. The Comprehensive Plan and all other activities should support the goals and projects contained within this document.

Riverine flooding occurs along the established watercourses within the area. The two primary regional watercourses are the Gila and Colorado Rivers. There are also numerous other ephemeral washes draining into either the Colorado or Gila Rivers. Extensive networks of dams and flood control structures upstream of Yuma County usually limit flooding events on the Colorado and Gila Rivers. Prior to construction of these dams, flooding on both rivers occurred seasonally. However, extreme tropical storm remnants, heavy winter storms or early spring rains coupled with snowmelt and full reservoirs can still cause damaging floods along the Colorado and Gila Rivers. The following are examples of recent flooding events that had significant impact on Yuma County.

In 1983, exceedingly large amounts of runoff caused by rapidly melting snow from record snowfalls and late rains resulted in an unusually high volume of melt off which required the upper basin reservoirs to release unprecedented volumes of water into the lower Colorado River system. The releases caused the Colorado River to flood low-lying areas, caused erosion of river banks and caused surface ponding due to groundwater seepage. Septic tank systems and water treatment systems were also damaged. Damage in Yuma County was estimated at $13 million.

In the winter of 1993, heavy rain fell over most of northern, central and southeastern Arizona causing water to begin spilling over the Painted Rock Dam just upstream from Yuma County on the Gila River. Downstream flows damaged crops and property on both sides of the Gila River. About 20,000 acres of farmland were flooded and huge losses were sustained in the lettuce crop and water flooded roads and closed bridges. Some 3,500 residents were evacuated from this area. All Gila River crossings were closed at one time or another during the flood. According to the United *States Army Corp of Engineers Flood Damages Report 21*, Yuma County had in excess of $130 million in public infrastructure, agricultural, private property, economic and environmental damages.

Floodplain Regulations for Yuma County

There are specific areas in Yuma County that have a high risk of damage from flood. Therefore, the Yuma County Flood Control District has adopted the *Floodplain Regulations for Yuma County* in order to:

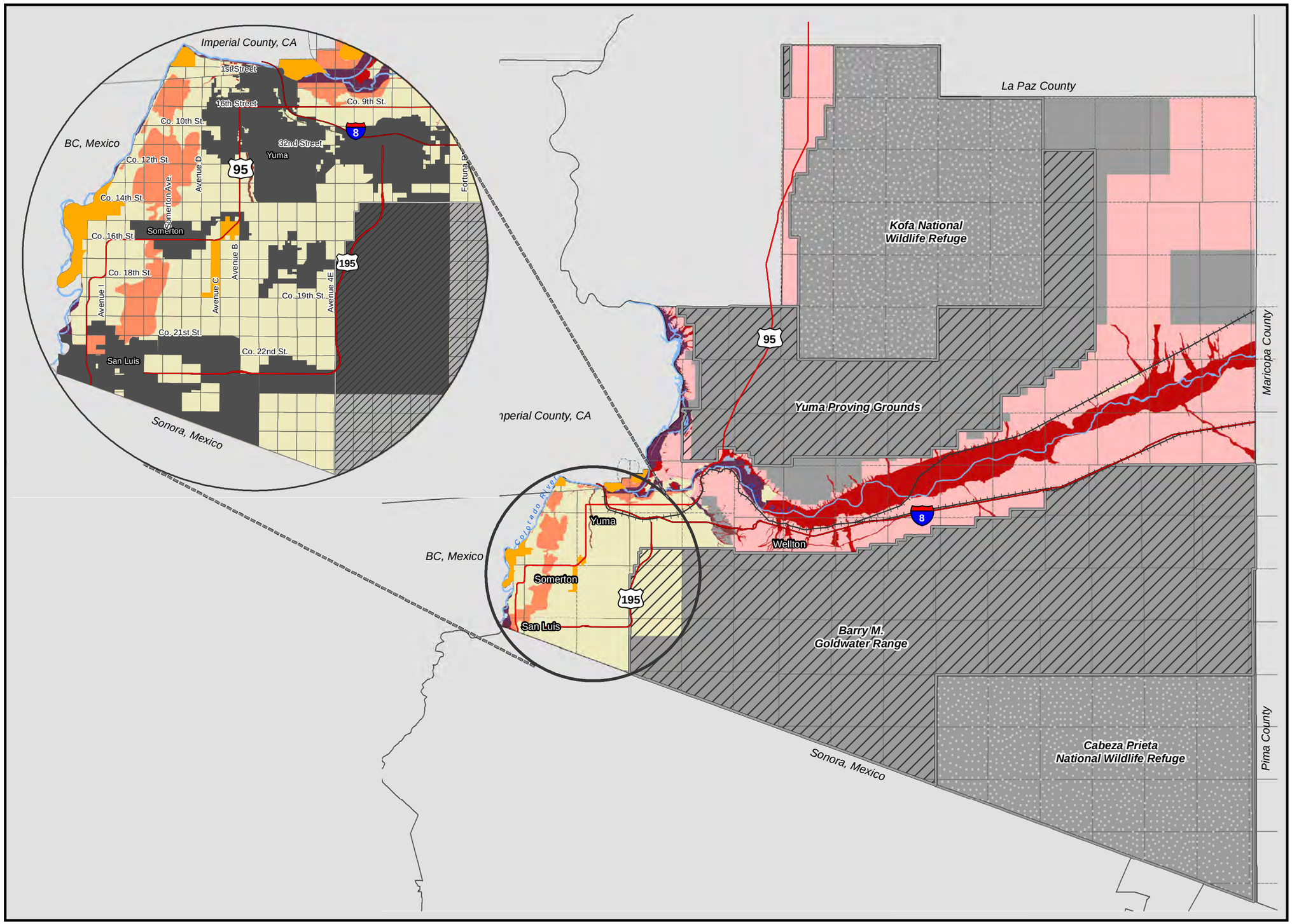
- Protect human life and health
- Minimize expenditure of public money for costly flood control projects
- Minimize damage to public facilities and utilities such as water, sewer and gas mains; electric, telephone and television lines; and streets and bridges located in areas of special
  flood hazard
- Maintain eligibility for State and Federal disaster relief

The *Floodplain Regulations for Yuma County* require that a Floodplain Use Permit be obtained before any new construction, development, substantial improvement, manufactured home placement or prefabricated building placement begins within any Special Flood Hazard Areas that have been classified by the Federal Emergency Management Agency (FEMA) and shown on a Flood Insurance Rate Map as A, AO, A1-30, AR, A99, AH, or V (refer to Map 1 on page 6). In all Special Flood Hazard Areas, development shall comply with the standards and regulations set forth in A.R.S. §48-3601 et. seq. and the National Flood Insurance Program (44 CFR Part 59, 60, 65, & 70) and Section 5.0 of the *Floodplain Regulations for Yuma County.*

Zone D 	Areas in which flood hazards are undetermined, but possible.
Zone X-Shaded	Areas of 0.2% annual chance flood, areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood.
Zone X-Unshaded	Areas determined to be outside the 0.2% annual chance floodplain.
Zone X-Protected by Levee 	Area protected from 1% annual chance flood by levee.
Zone A 	Areas subject to inundation by the 1% annual chance flood. No depths or base flood elevations are shown within these zones.
Zone AE 	Areas subject to the 1% annual chance flood where Base Flood Elevations are determined.
Zone AH 	Areas subject to the 1% annual chance flood with flood depths of 1 to 3 feet (usually areas of ponding) and where Base Flood Elevations are determined.
Zone AO 	Areas subject to the 1% annual chance flood with flood depths of 1 to 3 feet (usually sheet flow on sloping terrain) and where average depths are determined. For areas of alluvial fan flooding, velocities are also determined.

Table 1: FEMA Flood Zone Definitions

Safety Elements - Flood Zones



YUMA COUNTY ARIZONA

Flood Zones

- X Shaded
- A
- AE
- AH
- AO
- D
- X Unshaded
- X Protected By Levee
- Military Boundary
- Incorporated Areas
- Indian Reservations
- National Wildlife Refuge

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division &
Federal Emergency Management Agency

Date: June, 2011

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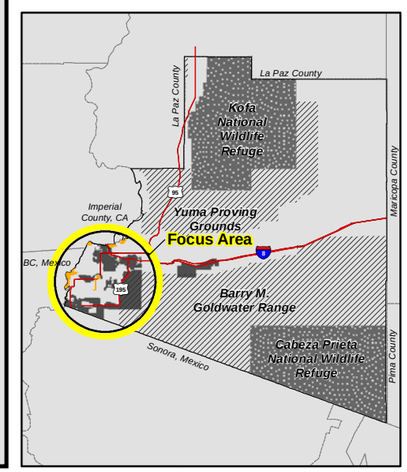


9.3 Earthquakes

The seismic hazard for the Yuma region is considered the highest in Arizona. Yuma County is located in relatively close proximity to several major geologic fault zones with historic seismic activity which are located to the west of Yuma County in Imperial County, California and in Mexico. These faults include the Imperial Fault (28 miles), Cerro Prieto Fault (45 miles), San Andreas Fault (65miles) and San Jacinto Fault (65 miles). The stretch of the San Andreas Fault nearest Yuma has not ruptured in over 300 years and is considered a likely area to experience an earthquake of a magnitude of 8.0 or higher. An earthquake of that magnitude could cause catastrophic damage to the area.[1]

Since 1973, these faults have produced over 5,000 earthquakes with an epicenter located within 250 kilometers of Yuma County (Map 2). The vast majority of these quakes were minor and only detectible with a seismograph. Only seven earthquakes had their epicenter within Yuma County and all of them extremely minor. However, there have been several earthquakes during the last 150 years that have caused damage within Yuma County due to ground shaking, and there is a reasonable probability that this will occur again. Table 2 shows some of the earthquakes that were most notably felt in Yuma County. Potential damage from ground shaking during an earthquake increases from east to west across Yuma County.

Liquefaction occurs when an earthquake causes ground shaking in an area that has shallow ground water and sandy soils. Liquefaction caused by an earthquake has a greater potential to cause widespread damage in Yuma County than does ground shaking. Liquefaction is the process wherein soils transform into a liquid state due to ground shaking from an earthquake. When the ground liquefies, sandy materials saturated with water can behave like a liquid instead of like solid ground. The ground may sink or even pull apart and sand boils or sand "volcanoes" can appear. In Yuma County, conditions such as sandy soils and high ground water are found in the Yuma and Gila Valleys, and put these areas at risk for liquefaction in the event of a strong enough earthquake. Map 3 depicts the areas deemed to be a high risk of liquefaction in Yuma County. After an earthquake in 1852, more than 100 mud volcanoes were found two weeks after the quakes in Yuma County. The volcanoes were still emitting steam and gases with the major one erupting every 10 to 15 minutes and throwing mud 60 to 70 feet in the air.[2]

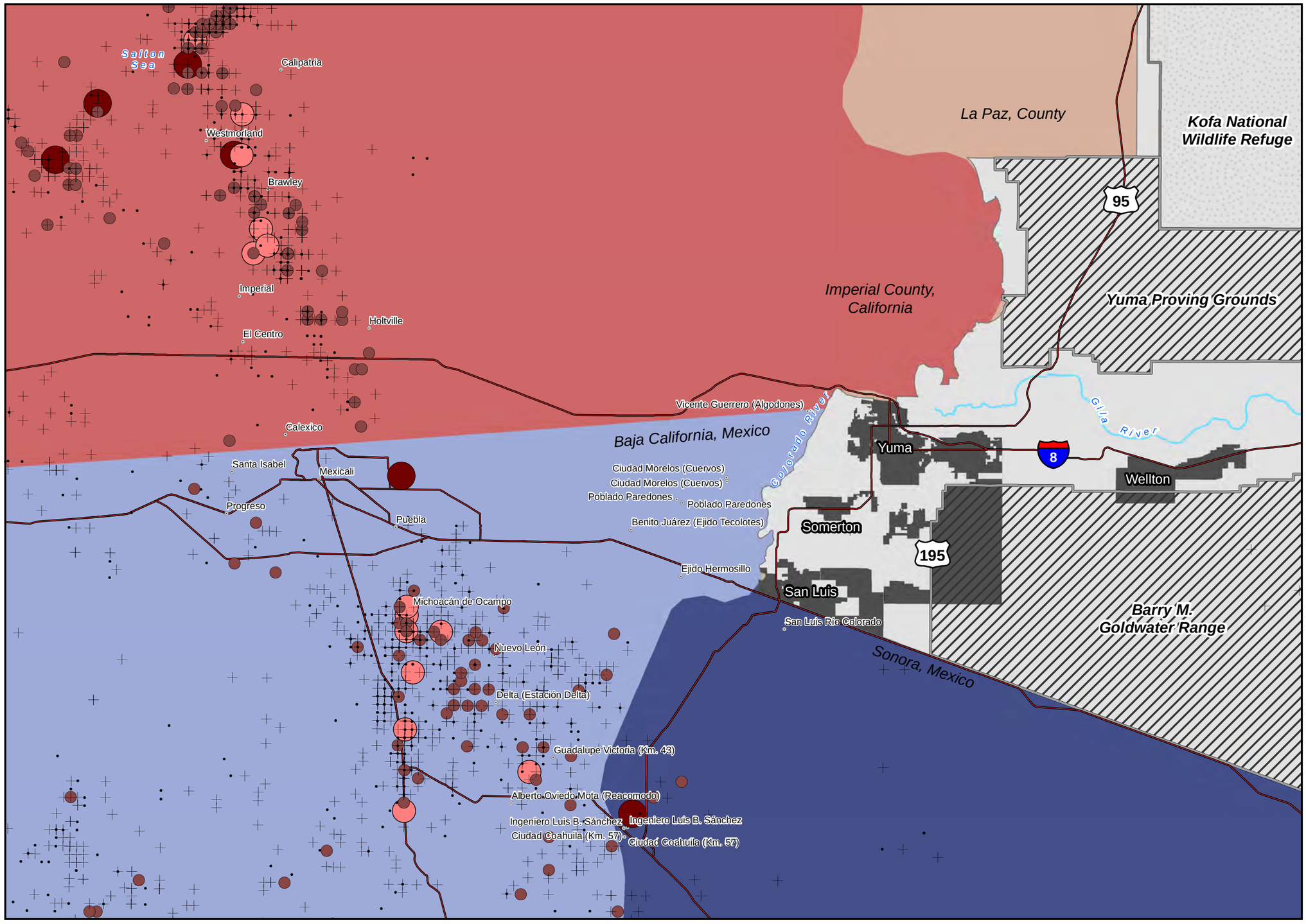
Liquefaction is especially damaging to in-ground infrastructure such as buried utilities and irrigation and drainage canals. An earthquake in 1940 that had its epicenter in Imperial County caused significant liquefaction to occur in the southern portion of the Yuma Valley. In Somerton, roads were buckled and bridges dislodged. Twenty flumes received heavy damage, as did bridges and culverts in the area. Canal banks shattered under the quake's force. Geysers of sand spewed from the cracks in the ground up to six feet in the air. The earthquake damaged sections of the levee railroad grade near Gadsden, four water services lines were broken and the irrigation system was badly damaged.

1 Arizona Division of Emergency Management “State of Arizona Multi-Hazard Mitigation Plan” November 2007

2 DuBois, Susan M & Ann W. Smith “Earthquakes Causing Damage in Arizona.” *Bureau of Geology and Mineral Technology. September 1980.*

3 U.S. Bureau of Reclamation. “Yuma and Yuma Auxiliary Project History”

Safety Element - Earthquakes in the Yuma Vicinity 1973-2010



Magnitude

- Less than 3
- 3 to 3.99
- 4 to 4.99
- 5 to 5.99
- 6 to 6.99
- More than 7

- Military Boundary
- National Wildlife Refuge
- Incorporated Areas
- Yuma County

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division & U.S.G.S

Date: June, 2011

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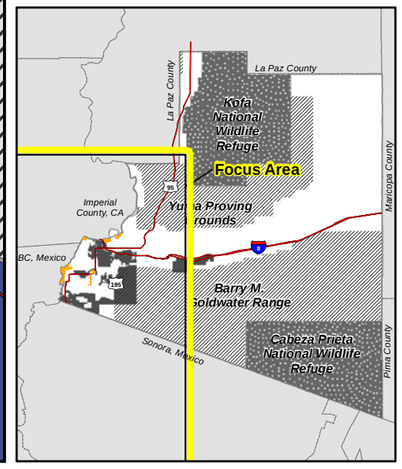
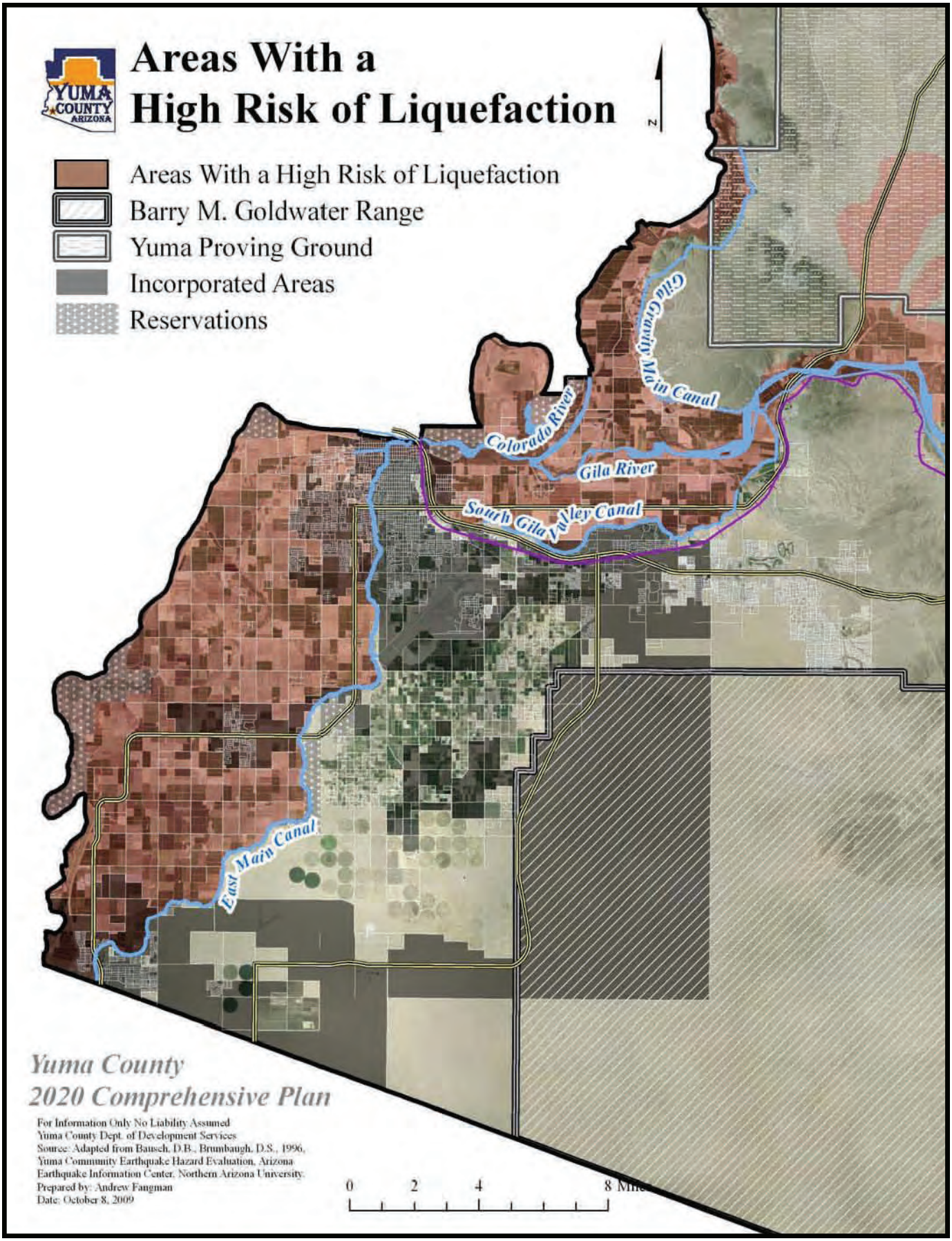


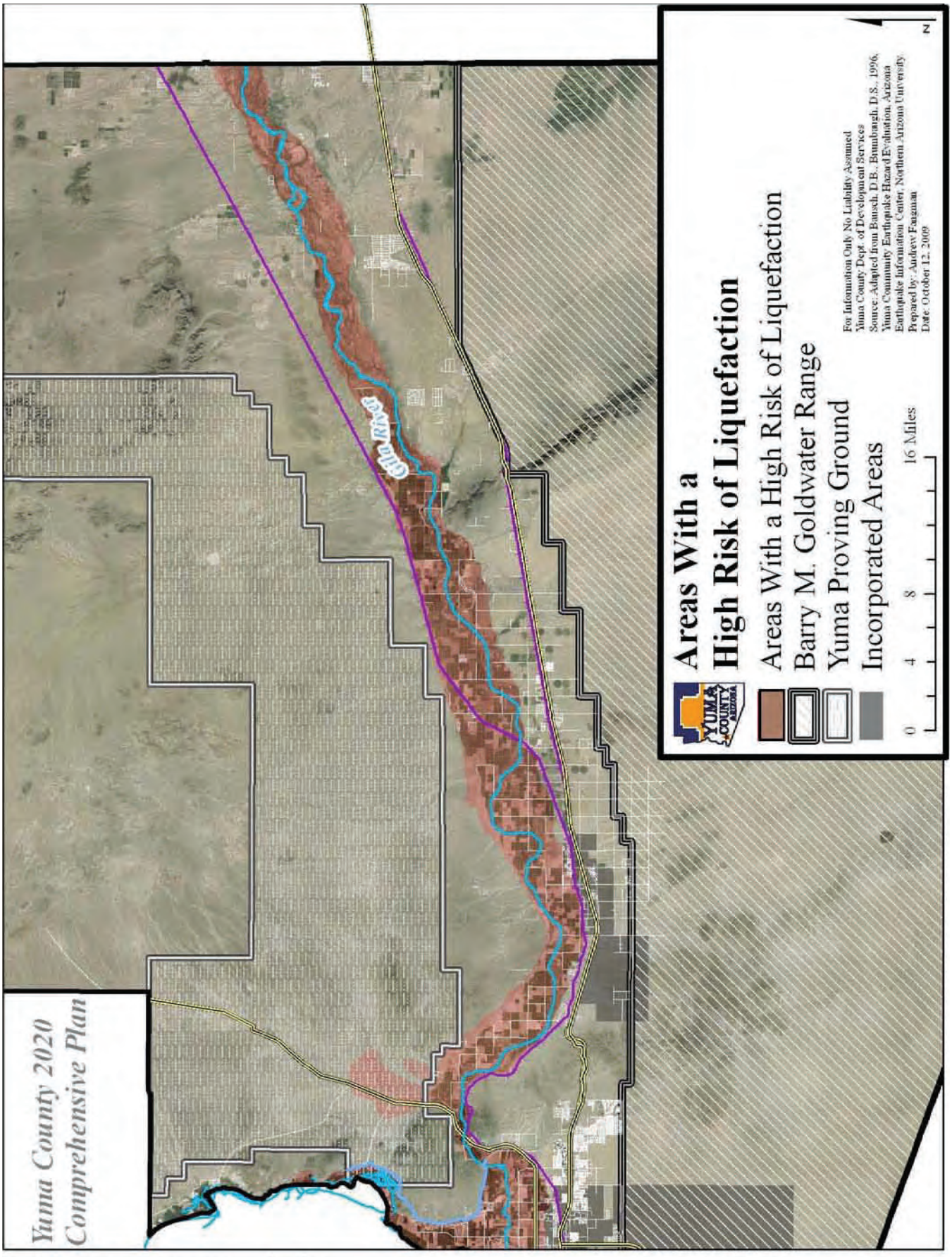
Date	Location	Intensity	Effects on Yuma County
November 30, 1852	20 to 30 miles southwest of Yuma	IX-XI	In the central area more than 100 mud volcanoes were found more than two weeks after the quakes. The volcanoes were still emitting steam and gases with the major one erupting every 10 to 15 minutes and throwing mud 60 to 70 feet in the air. The shock was violent at Fort Yuma. Much fissuring occurred in the Yuma area. In some places the Colorado River sank two feet and the riverbank caved in at many locations[4]
July 30, 1891	Lerdo, Mexico	IX-X	Large fissures opened up along the Colorado River in Mexico. In Yuma people rushed into the streets, some walls were cracked, and small objects were moved about.[4]
May 19, 1940	Imperial County, CA	X	Many sand boils were observed near Gadsden. Geysers spouting water several meters high also were reported. Canals, drainage channels, flumes and bridges were damaged near Gadsden. In Somerton roads were buckled and bridges dislodged. Four water services lines were broken and the irrigation system was badly damaged[4]
October 15, 1979	Near Brawley, CA	IX	Minor damage in Yuma[4]
June 9, 1980	South of Mexicali, Mexico	IX	Knocked groceries off the shelves in stores in Yuma[4]
February 9, 2008	12 Southeast of Mexicali	VI	Damaged the Gandolfo Annex in downtown Yuma [4]
April 4, 2010	39 Miles South-Southeast of Calexico, Co	IX	Second strongest earthquake with an epicenter in Baja California ever measured. Felt strongly in Yuma County. Numerous buildings, mostly in southern Yuma County reported some damage. Caused power outages effecting approximately 4,900 customers in Yuma County [4]

Table 2: Significant Earthquakes that Had an Impact in the Yuma Area[4]

4. DuBois, Susan M & Ann W. Smith "Earthquakes Causing Damage in Arizona." *Bureau of Geology and Mineral Technology. September 1980.* http://www.azgs.state.az.us/Hazards_ocr/earthquakes/Summary%20of%20Earthquakes%20Causing%20Damage%20in%20AZ.pdf



Map 3: Areas With a High Risk of Liquefaction: Western Yuma County



Map 4: Areas With a High Risk of Liquefaction: Eastern Yuma County

Power pole that has been broken by a thunderstorm

9.4 Storms

Yuma County is subject to three different types of storms that can pose a risk to life and property: Summer monsoons, winter rains and tropical storm remnants. These storm types vary by time of year they occur, frequency and the kind and severity of damage done by them.

The most frequent type of storms that occur in Yuma are those associated with the annual monsoon season which runs from July to September. Monsoon season occurs when the primary wind flow into Yuma County shifts from the west or northwest to the south or southeast. With this shift, winds blowing into Yuma County originate from over the Pacific Ocean and the Gulf of California, and as a result carry a great deal of moisture into the area. This moisture fuels frequent compact, swift-moving and powerful thunderstorms with winds of up to 80 miles per hour and rainfall rates exceeding an inch per hour. These storms are capable of unleashing violent flash floods, thousands of lightning strikes, crop-damaging hail and walls of blowing dust that can extend thousands of feet into the air and can lower visibility to just a few feet.[5]

Storms during the winter months tend to be much larger in area and longer in duration than monsoon storms; however, they are of a much lower intensity, particularly in regards to wind speed. Damage from these storms typically results from flooding. The storm that struck Yuma County on January 21, 2010, one the largest winter storms to ever strike the County, well illustrates the risks posed by this type of storm. This storm dropped nearly 2½ inches of rain causing wide-spread flooding of low spots, and closing numerous roads and schools. The City of Yuma received a Presidential Emergency Declaration to help pay for an estimated $300,000 in damages to roads, retention basins, parks and other public infrastructure. The National Climatic Data Center estimated property damage from this storm at $400,000. This storm was one of three winter storms to cause more than $10,000 in damage from 2005 through 2010 as illustrated in Table 3 on Page 14.

[5] NOAA/National Weather Service. "The North American Monsoon. Reports to the Nation on our Changing Planet." August 2004

The most potentially destructive type of storm that can hit Yuma County are tropical storms or remnants of a tropical storm or a hurricane. The northern end of the Gulf of California is located 40 to 50 miles south of the southern border of Yuma County. Under the right set of circumstances a hurricane coming ashore on the northern coast of the Gulf of California can reach Yuma County at tropical storm strength, as was the case in 1997 with Hurricane Nora, which hit with winds over 73 miles an hour.

More commonly, hurricanes or tropical storms come ashore on the northern coast of the Gulf of California and then reach Yuma County as remnants of tropical storms. These remnants, however, remain powerful storms, capable of producing more rainfall in 24 hours than is typically seen in a year. Strong winds are also part of these storms. The fact that these storms cover a much larger area than the typical thunderstorm increases the amount of damage that they can cause. The potential for widespread damage is well illustrated by the damage caused by the remnants of Hurricane Nora in 1997 where crop damage across Yuma County was estimated at $200 million. Table 4 on page 15 lists the six times in recorded history that Yuma County was significantly impacted by a tropical storm, hurricane or its remnants. While this type of storm is the most destructive to threaten Yuma County, they are a rare occurrence.

An additional hazard that storms pose to Yuma County is that they can make access to certain inhabited areas of the county during and immediately after heavy rainfall events difficult. In some subdivisions developed prior to Yuma County adopting subdivision regulations and in many wildcat subdivisions, access to homes are via unmaintained and unpaved roads. Many of these roads never included any provisions for drainage, or if they did, a lack of or inadequate informal maintenance rendered any provisions for drainage ineffective.

As a result, access to all or parts of these subdivisions can be impeded by significant amounts of standing water and mud during and after heavy rainfall events. Often, only high clearance four wheel drive vehicles have full access. This problem is amplified in areas of heavy clay soils where water percolates into the soil at a very slow rate, where areas of standing water can last for days. This thick clay soil forms a thick mud that can make passage for many vehicles difficult. The issue of lack of all-weather access to certain existing subdivisions and other residential areas and how this issue might be dealt with is covered in greater detail in the Circulation Element.

An unpaved and unmaintained street after a heavy rainfall

Date	Description	Reported
April 23, 2005	Winds associated with thunderstorms damaged roofs and carports. Power was knocked out in parts of the Yuma Foothills area. Small hail was also reported with these thunderstorms.	$ 20,000.00
July 29, 2005	Power poles down at Avenue 45E and County 5th Street.	$ 25,000.00
July 31, 2005	About 34 power poles down near County 13th Street leaving 1,000 customers without power.	$ 50,000.00
August 1, 2005	Power poles knocked down in Dome Valley.	$ 10,000.00
August 4, 2005	Trees and 30 utility power poles were blown down by storm winds.	$ 50,000.00
August 6, 2006	Car windows broken by hail at Martinez Lake.	$ 10,000.00
August 9, 2006	Power lines down and some equipment damaged by strong winds at YPG.	$ 20,000.00
September 6, 2006	A roof was damaged by very strong winds and heavy rain washed out some dirt roads at YPG. Small hail was also reported.	$ 20,000.00
September 2, 2007	Numerous trees and as many as 11 power poles reported down due to strong winds with peak gusts up to 84 mph. 600 people were left without power. Condos in the 100 block of West 27th Place had considerable roof damage with ceilings collapsing onto living rooms and dining rooms.	$ 1,500,000.00
November 30, 2007	About 1,000 APS customers were left without power after heavy rains triggered fires to equipment on 15 power poles.	$ 15,000.00
March 2, 2008	Peak wind gust measured at 46 mph at the airport in Yuma. Winds also damaged a roof of a bank	$ 20,000.00
July 20, 2008	Heavy rain caused some damage to a thrift store in Yuma. Several businesses at Southgate Mall reported damage due to standing water. A new daily rainfall record 0.74 inches was set.	$ 100,000.00
August 29, 2008	Trees were uprooted and a semi-trailer was turned over. A peak gust of 57 mph was measured. About 1,000 APS customers were left without power due to these thunderstorm winds.	$ 150,000.00
September 10, 2008	Somerton police reported power lines down due to very strong winds from thunderstorms. At the peak of the storm, between 2,500 and 3,000 APS customers were without power.	$ 150,000.00
September 11, 2008	Two power poles downed by strong winds at Avenue A and 3rd street in Yuma.	$ 10,000.00
July 18, 2009	Thunderstorm winds created a huge dust storm that affected much of the Yuma area with near zero visibility. Wind speeds were estimated to be over 60 mph with considerable damage to property. At least one home was damaged with trees and power lines downed by strong winds.	$ 100,000.00
July 24, 2009	Several power poles were downed due to strong thunderstorm winds.	$ 20,000.00
September 5, 2009	Heavy rain hit Tacna with one inch in 30 minutes. Minor street flooding was reported in town and Avenue 16E in the Dome Valley was washed out. At least one business in Wellton was damaged by flooding. The official amount at the Yuma airport was 1.62 inches. Power outage reported by Wellton Irrigation District lasted about 4 hours. Trees were uprooted and power poles were damaged. Lightning struck a home near highway 95 and Avenue 5E, resulting in a fire.	$ 70,000.00
October 27, 2009	Winds increased during the late afternoon hours and caused a power outage to the area of San Luis and Somerton. The outage initially affected 16,000 customers in southern Yuma County.	$ 10,000.00
December 7, 2009	Strong winds resulted in power outages and minor structural damage in Yuma.	$ 30,000.00
January 21, 2010	Four semi-trucks overturned on Interstate Highway 8 at milepost 42 and milepost 67 due to high winds. Flooded streets and low spots. Numerous reports of large trees blown down in Yuma.	$ 400,000.00

Table 3: Thunderstorms from 2005 to 2010 for which property damage was reported[6]

[6] National Climatic Data Center

Date	Storm	Effects on Yuma County
September 30, 1921	Unnamed Storm	Tropical storm crossed the Baja peninsula southwest of Yuma and moved up the Colorado River Valley. Several stations along the Colorado River reported an excess of three inches of rain including 3.65 inches at Yuma.
August 28, 1951	Unnamed Storm	A hurricane came ashore on the Baja peninsula southwest of Yuma. An excess of 5.00 inches of rain fell in southwest Arizona.
September 2, 1967	Hurricane Katrina	Hurricane Katrina comes up the Gulf of California and comes ashore south of Yuma. Over 2.00 inches of rain fell in southwest Arizona with lesser amounts elsewhere.
October 7, 1972	Hurricane Joanne	Tropical Storm Joanne (earlier a hurricane) moved across the Baja peninsula and came ashore in western Mexico south of Ajo. It was-the first "documented" time that a tropical storm reached Arizona with its cyclonic circulation intact. Heavy rains fell over much of the area with 2.21 inches falling in Yuma.
September 10, 1976	Hurricane Kathleen	After downgraded to tropical storm status, Kathleen lashed Yuma with sustained winds exceeding 50 mph and gusts as high as 76 mph. One man was killed as a 75 foot palm tree crashed onto his mobile home. This tropical storm inflicted over $2 million in dam-ages in Yuma and dropped half of the annual rainfall in one hour.
August 18, 1977	Hurricane Doreen	Severe flooding occurred in Yuma County. A weather station in the Yuma Valley recorded more than 7 inches of rain
September 25, 1997	Hurricane Nora	Yuma County was hit with the remnants of Hurricane Nora with 3.59 inches of rainfall recorded at the Yuma International Airport. The average "annual" rainfall in Yuma is 3.17 inches. The center of the storm passed directly over Yuma with wind gusts as high as 54 mph. Significant problems including downed trees, loss of electrical power, restricted access for emergency crews and severe flooding problems and wind damage were reported. In Somerton damage to mobile homes and flooding was reported. About 12,000 people lost power in Yuma. An estimated $150 to $200 million in damage was sustained throughout Yuma County due mainly to flooding crops. About $30 to $40 million of the damage was to lemon trees.

Table 4: Tropical Storms and Hurricanes that Significantly Impacted Yuma County[7]

[7] National Weather Service. " Top Arizona Hurricane/Tropical Storm Events."

9.5 Wildfires

Wildfires can be human-caused through acts such as arson or campfires, or can be caused by natural events such as lightning. If not promptly controlled wildfires may develop into an emergency. Even small fires can threaten lives and resources and destroy improved properties. The indirect effects of wildfires can also be catastrophic. In addition to stripping the land of vegetation and personal property, large, intense fires can harm the soil and waterways. Soil exposed to intense heat may temporarily lose its capability to absorb moisture and support life. Exposed soils can then erode quickly and be transported to nearby rivers, harming aquatic life, increasing flood risks and degrading water quality.[8]

Wildfire hazards within Yuma County are typically limited to the Colorado and Gila River floodplains and the more densely vegetated areas adjacent to some of the larger washes. Fires burning through the heavily vegetated floodplain areas can be very difficult to fight, especially in areas where water is not readily available. Areas where development has occurred directly adjacent to these vegetated floodplains, such as Martinez Lake, have the greatest risk of danger to lives and properties from wildfires in Yuma County.

Map 8 displays the location and size of wildfires larger than one acre that occurred between 1980 and 2009. This map also depicts the areas of Yuma County that are heavily vegetated based on the United States Geological Survey Gap Analysis Program which, in a detailed manner, classifies and maps vegetation coverage. The areas depicted on this map as heavily vegetated are areas in which dense types of vegetation is prominent. As this map clearly illustrates there is a very strong coloration between these areas of heavy vegetation and the location of wildfires. For any development to occur in or directly adjacent to these heavily vegetated areas the mitigation of the risk posed by wildfires must be considered.

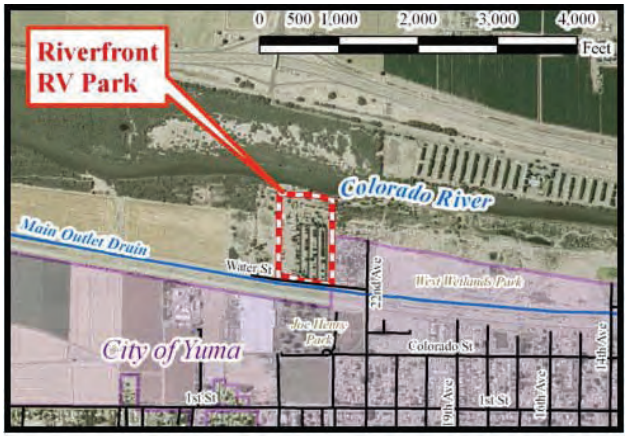
August 2009 Wildfire in the Martinez Lake Area[8]

The Sonoran desert vegetation typically found in Yuma County is less dense than in other areas of the state. This sparse vegetation, combined with relative density of urban areas, makes wildfire risk within the County relatively low when compared to the more densely forested areas of the state. However $5,685,793 has been expended through the Arizona Division of Emergency Management on responding to 19 declared wildfire events that included Yuma County between April of 1973 and September 2010.[9]

[8] Yuma County Wildland Urban Interface Community Wildfire Protection Plan
[9] Yuma County Multi-Jurisdictional Hazard Mitigation Plan

Map 5: Martinez Lake/Fisher's Landing

Map 6: Hidden Shores Village



Map 7: Riverfront RV Park

In September of 2010, the Yuma County Board of Supervisors adopted the Yuma County Community Wildfire Protection Plan (CWPP). The CWPP provides a comprehensive, scientifically-based analysis of wildfire related hazards and risks in areas where structures and other human development meet with undeveloped wildland (wildland urban interface). Three communities in Yuma County were identified as being within the wildland urban interface: Martinez Lake/Fisher's Landing, Hidden Shores Village and Riverfront RV Park. The CWPP also makes very specific recommendations on the risk from wildfires that can be mitigated in these areas. All new development in these areas should only occur in a manner that is consistent with these recommendations. Existing development should be encouraged to adopt as many of these recommendations as practical.

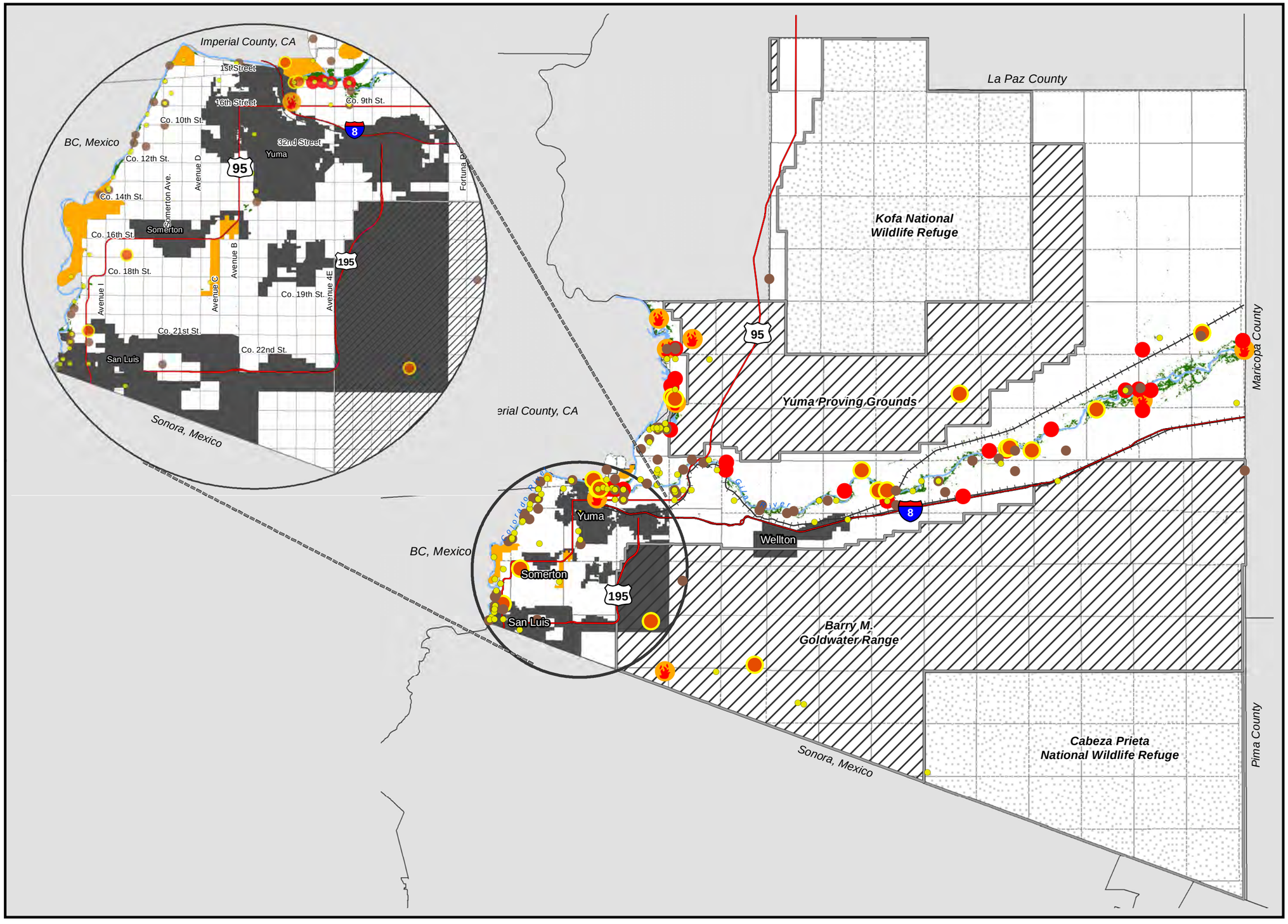
The Martinez Lake/Fisher's Landing area was rated as the residential area in Yuma County with the highest risk of damage from wildfires. This is due to the abundance of easily burnable fuels in the steep banked riparian areas lends itself to fast rates of spread and flame lengths greater than 11 feet. One of the largest local fires in recent memory occurred in the area in August 2009 when 70 acres burned and many structures were threatened.[10]

The risk from wildfires at Hidden Shores Village is rated as moderate. Vegetation has been cleared all the way around the park as well as between the permanent structures. While the vegetation has been cleared around the Village, there are house boats and fishing boats docked close to the riparian vegetation. A fire spreading from the riparian vegetation to the boats, and as a result into the community, poses the largest threat to Hidden Shores. The other major risk factor is the distance from continuously manned fire stations. [10]

The risk from wildfires at Riverfront RV Park is also rated as moderate. There is little vegetation within the Riverfront RV Park itself, but the riparian vegetation surrounding the park is dense and prone to burning. Evacuation is the largest issue as there is only one ingress/egress. Soft soil and dense vegetation impedes the ability of apparatus to operate outside of the park.[10]

[10] Yuma County Wildland Urban Interface Community Wildfire Protection Plan

Safety Elements - Wildfires



YUMA COUNTY ARIZONA

Wildfires

- 1 to 5 Acres
- 5 to 50 Acres
- 50 to 100 Acres
- 100 to 500 Acres
- Over 500 Acres
- Heavily Vegetated Area
- Indian Reservations
- Military Boundary
- Incorporated Areas
- National Wildlife Refuge

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division &
Federal Emergency Management Agency

Date: June, 2011

Miles
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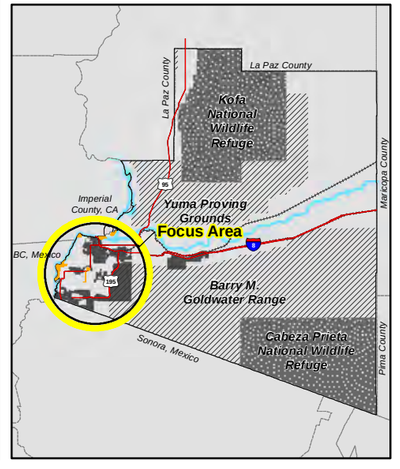
N W E S



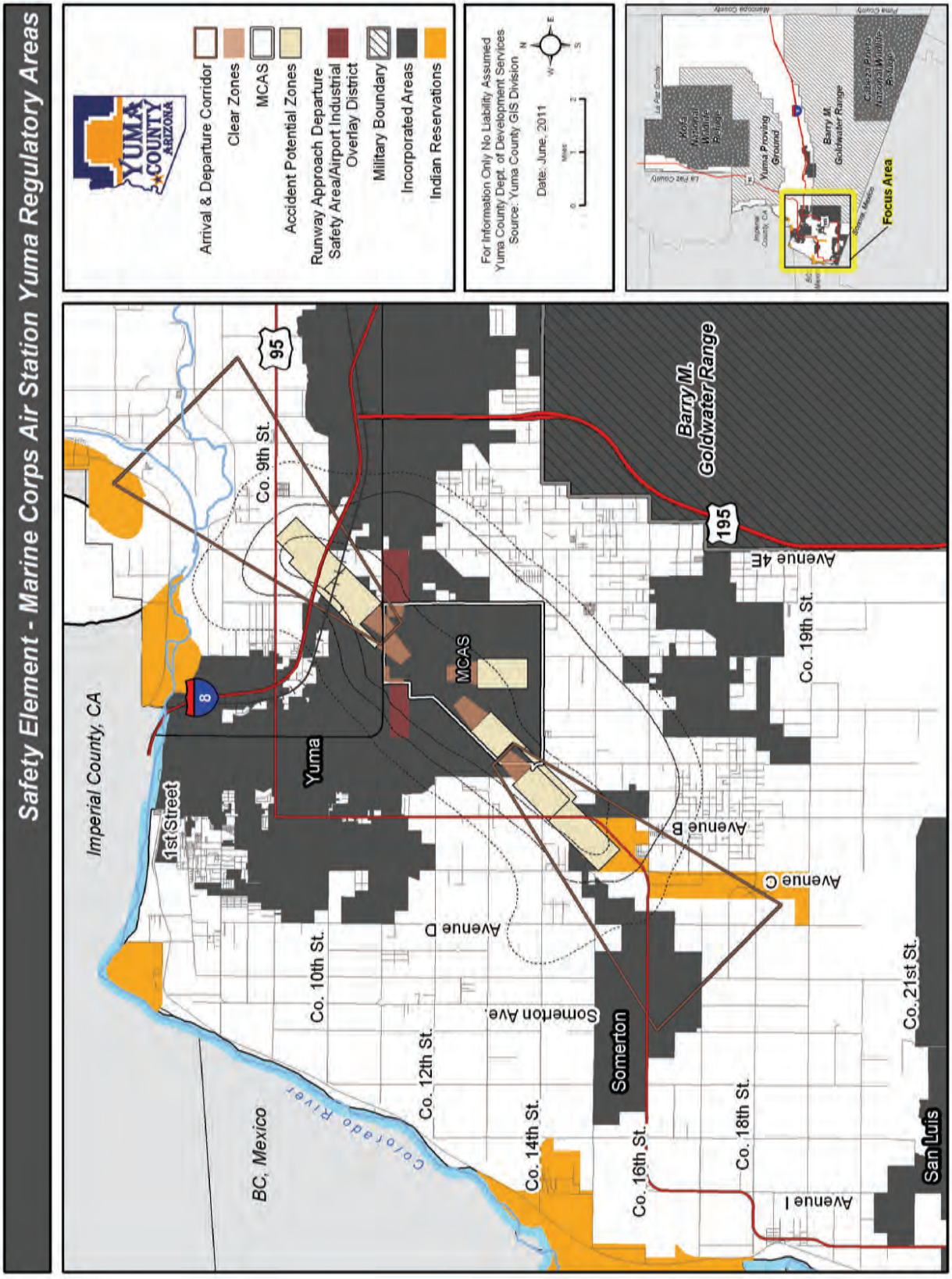
9.6 Aviation Safety

Aviation is a major industry in Yuma County and is centered around the Marine Corps Air Station-Yuma/Yuma International Airport. Marine Corps Air Station-Yuma (MCAS-Yuma) supports 80 percent of the Marine Corps' aviation training making it the busiest air station in the Marine Corps. In 2009 the Marine Corps reported 186,899 airfield operations at MCAS-Yuma. Yuma International Airport shares runways with MCAS-Yuma and serves both scheduled passenger service and general aviation. In 2009 there were 8,250 passenger aircraft and 36,887 general aviation operations. The large number of aviation operations being conducted out of MCAS-Yuma/Yuma International Airport increases the risk of plane crashes that could jeopardize the safety and property of Yuma County residents.

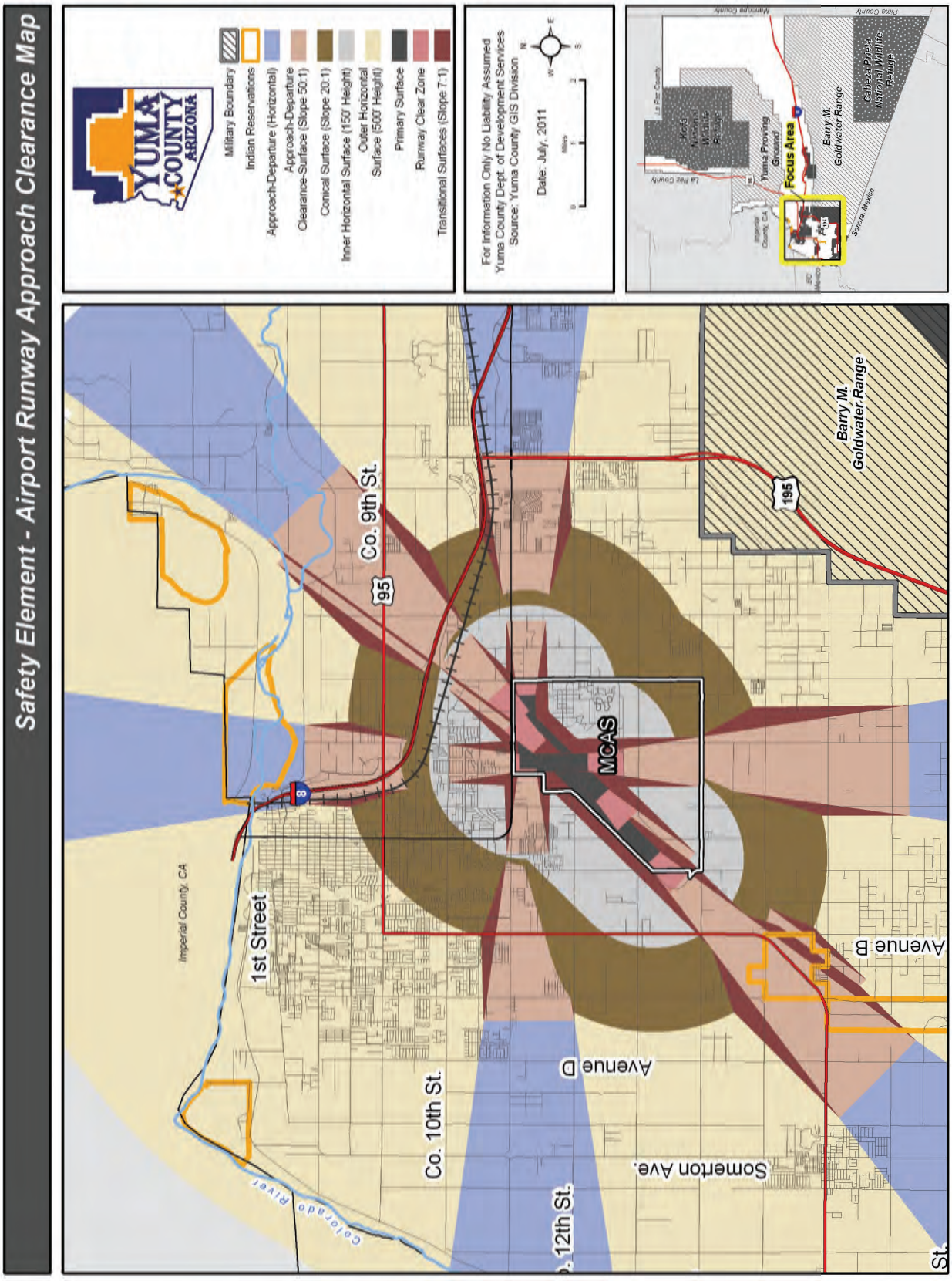
Since 1990 the National Transportation Safety Board has recorded 21 crashes of civil aircraft in Yuma County. Additionally there have been at least sixteen crashes of military aircraft in the same period of time in Yuma County. If these crashes occur over inhabited areas they can pose a significant risk to public safety. The most spectacular example of the danger the aircraft can pose to people and property on the ground occurred on June 15, 2005 when a Marine Corps AV-8B Harrier carrying four 500-pound bombs and 300 rounds of 25-millimeter ammunition crashed into the backyard of a home just north of MCAS-Yuma. Fortunately, damages were limited to structural damage to two homes and there were no serious injuries. In the immediate aftermath of the crash approximately 1,300 homes were evacuated.

The avoidance of incidents such as the one that occurred in June 2005 is why both the State of Arizona and Yuma County have adopted regulations that limit the type of development that can occur in areas near MCAS Yuma/Yuma International Airport that have a high risk of an aircraft crash. Different areas have different risks of damage from an aircraft crash. Article VII of the Yuma County Zoning Ordinance and Title 28, Chapter 25 of the Arizona Revised Statutes define, map and restrict how land may be used in these areas. Map 9 shows these areas.

Placement of structures in the wrong location can also pose a serious risk to aircraft. The risk is most acute near the end of runways where aircraft are at very low altitude as they begin their climb or end their descent. A tall structure constructed in these areas could create a significant hazard to aircraft. To address this risk, restrictions have been placed on the height of structures near MCAS Yuma/Yuma International Airport. Map 10 depicts these restrictions. No new structures are allowed within runway clear zones. In other areas the maximum height of structures is determined by a slope formula based on distance from the nearest runway. Some areas have a simple maximum height. It should be noted that when the maximum height of these areas conflict with that allowed by a location's zoning district, the more restrictive standard applies.



Map 9: Airport Noise & Accident Potential Zones



Map 10: Airport Runway Approach Clearance Map

9.7 Law Enforcement and Emergency Services

Law enforcement in unincorporated Yuma County is provided by the Patrol Bureau of the Yuma County Sheriff's Office. The Sheriff's Office has five substations throughout Yuma County. Six squads patrol the portion of the County west of Araby Road. Deputies assigned to the Foothills substation patrol Yuma County east of Araby Road to Telegraph Pass. Deputies assigned to the Wellton substation patrol Yuma County east of Telegraph Pass. Water Safety Deputies patrol the Martinez Lake area and the Colorado River from the southern end of Yuma County to the northern border of Yuma County at the La Paz County line. The Criminal Investigations unit responds to all major crimes and investigates commercial and residential burglaries in the unincorporated areas of the County. Map 11 depicts the distance to the nearest Sheriff's Office facility for unincorporated Yuma County.

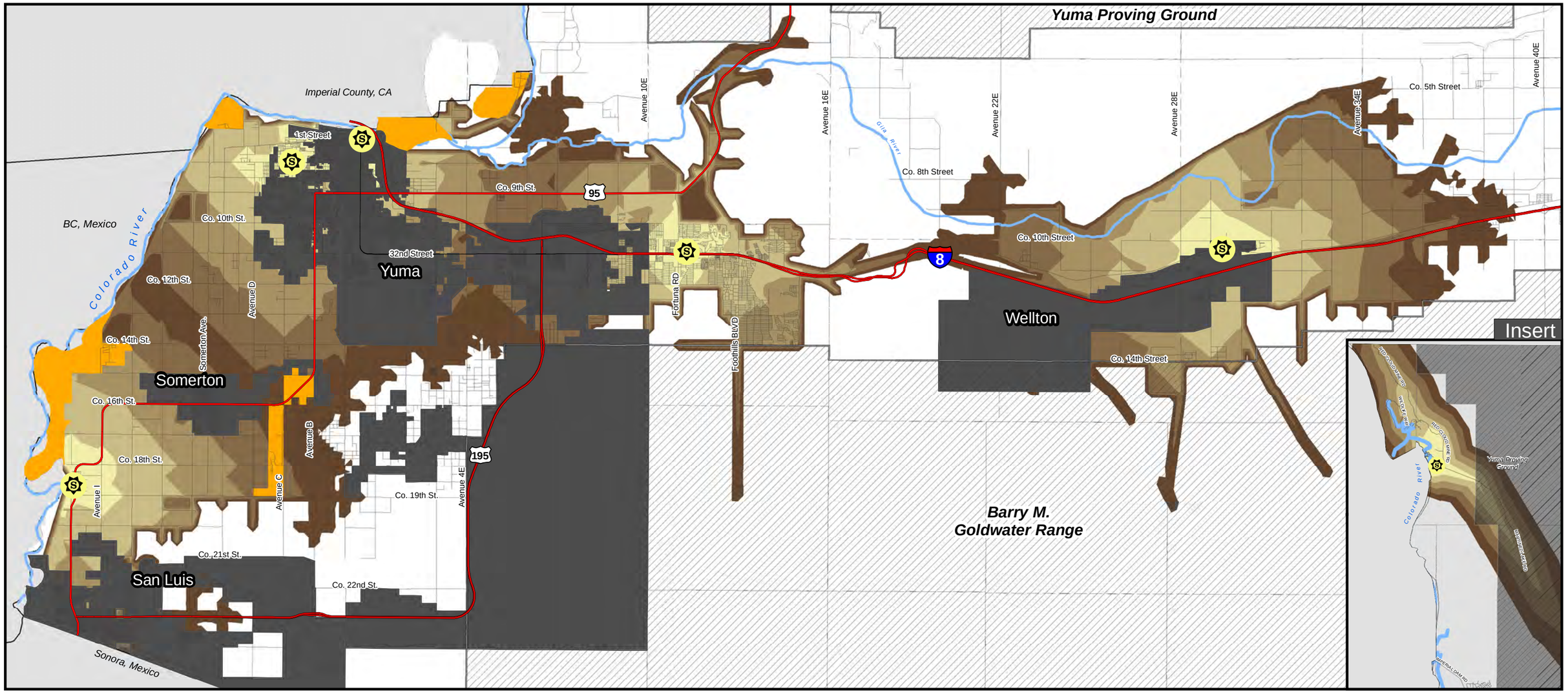
West of the Gila Mountains, fire/emergency medical services for unincorporated Yuma County are provided by the Rural/Metro Corporation and are funded by property owners and businesses through annual subscription fees paid directly to Rural/Metro. Rural/Metro has seven stations, all located west of the Gila Mountains, that respond to emergency calls in unincorporated Yuma County. Map 12 depicts the distance to the nearest Rural/Metro station for unincorporated Yuma County west of the Gila Mountains.

East of the Gila Mountains the Tacna Fire Department is the primary fire fighting agency for unincorporated Yuma County. The Tacna Fire Department is a volunteer fire department with a station located in the Tacna community on Avenue 40E. Ambulance service east of the Gila Mountains is provided by Tri-Valley Ambulance Service, Inc. which has a station located in the town of Wellton. Map 12 depicts the distance to the Tacna Fire Department and Tri-Valley Ambulance stations for unincorporated Yuma County east of the Gila Mountains.

In addition to the Rural/Metro and the Tacna Fire Department the municipalities and entities listed below have their own fire department or have significant fire fighting resources:

- City of Yuma
- City of San Luis
- Town of Wellton
- City of Somerton/Cocopah Reservation
- Bureau of Land Management
- Arizona State Land Department
- Marine Corps Air Station Yuma
- Yuma Proving Ground
- Imperial Wildlife Refuge

Safety Element - Law Enforcement



YUMA COUNTY ARIZONA

- Sheriffs Station
- Less than 2 Miles
- 2 to 4 Miles
- 4 to 6 Miles
- 6 to 8 Miles
- 8 to 10 Miles
- Military Boundary
- Incorporated Areas
- Indian Reservations

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division

Date: July, 2011

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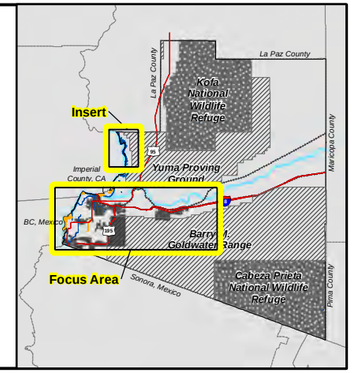
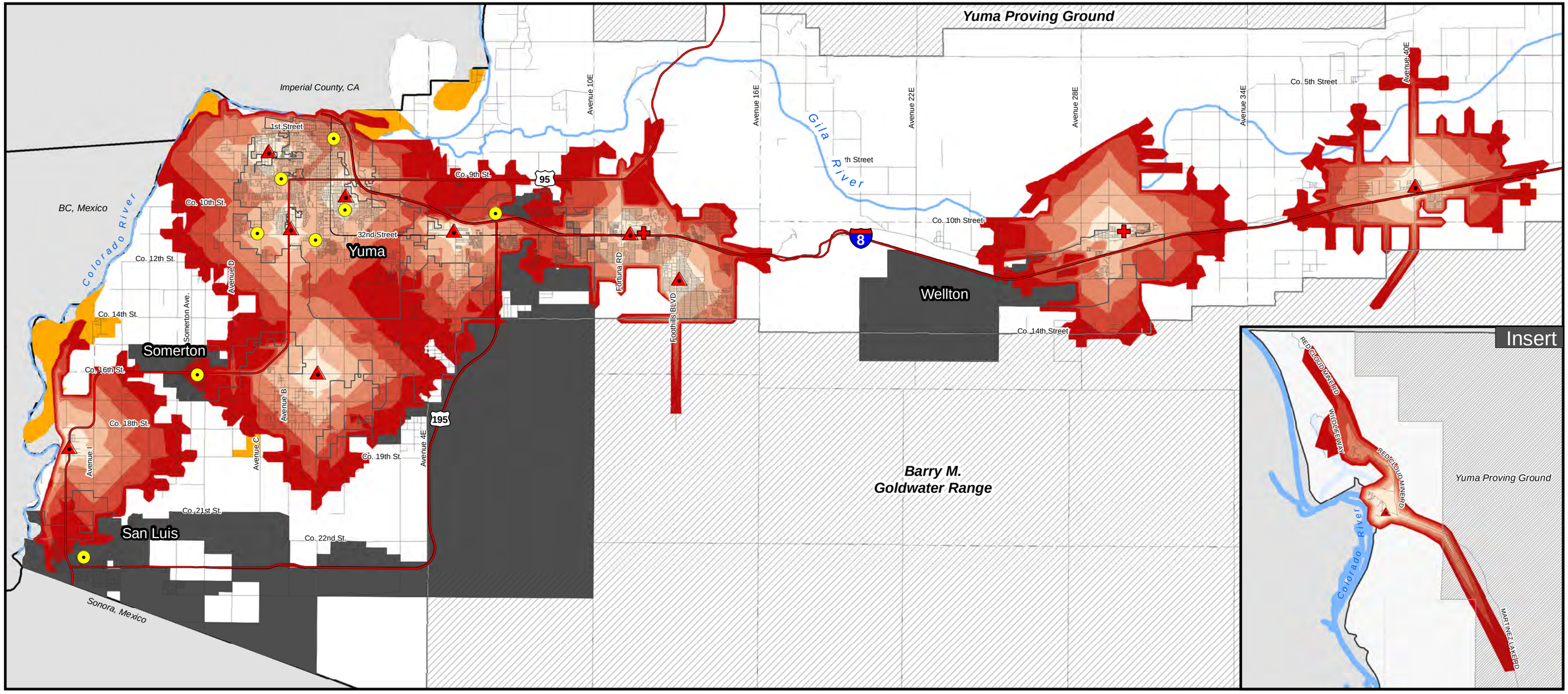


Safety Element - Fire/EMS Services



Fire/EMS Station Serving Unincorporated Yuma County

Other Fire Stations

EMS Station Serving Unincorporated Yuma County

Less than 1 Mile

1 to 2 Miles

2 to 3 Miles

3 to 4 Miles

4 to 5 Miles

Incorporated Areas

Military Boundary

Indian Reservations

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division

Date: July, 2011

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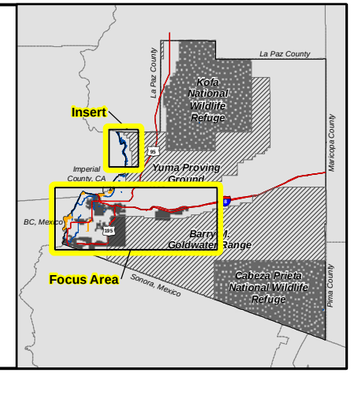
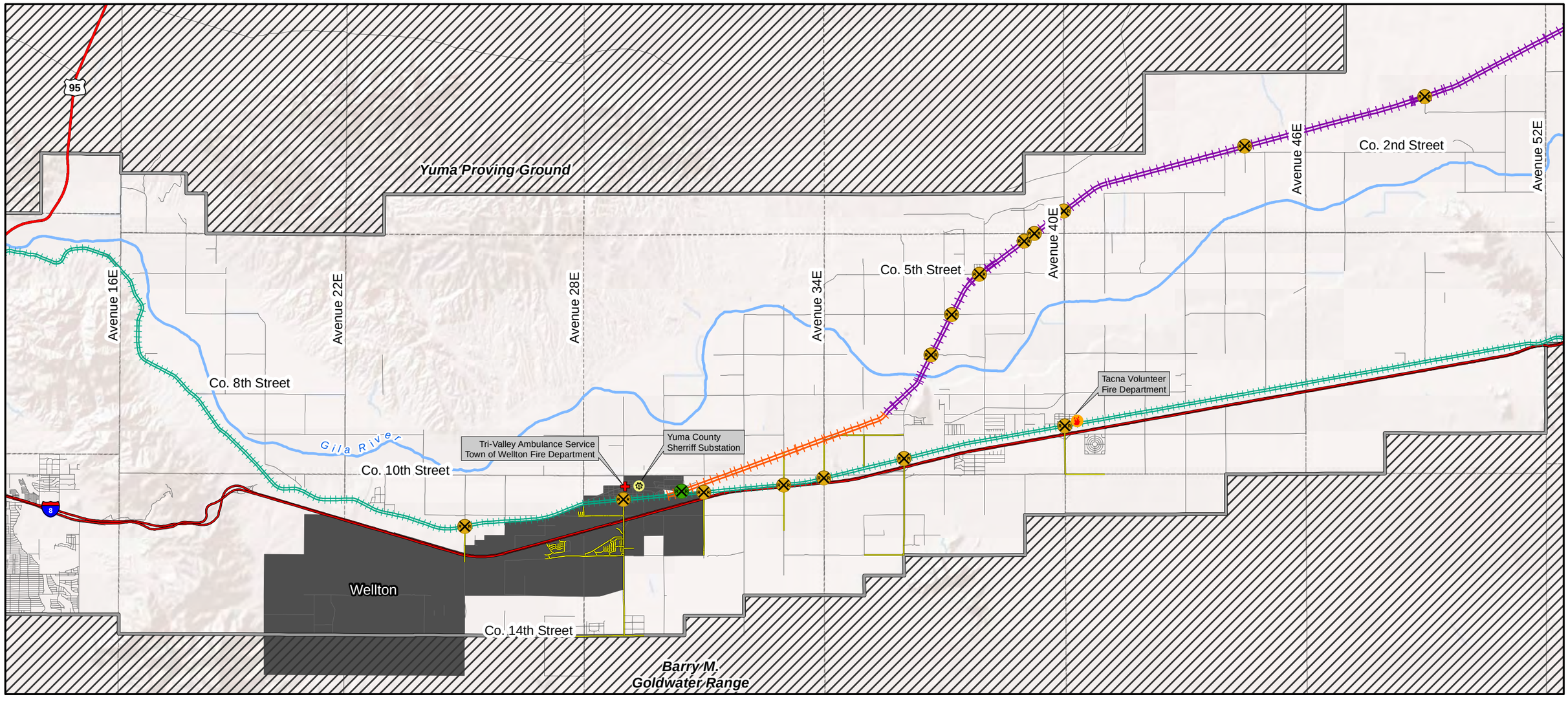


Railroad Crossings

An area of Yuma County where accessibility by emergency vehicles is a growing concern is the area located between the Gila and Mohawk Mountains and south of the Union Pacific Railroad tracks. There are seven railroad crossings in this area; six of them at grade. All emergency services in this area are located north of the railroad tracks. Two major trends in this area have been residential growth south of the railroad tracks, particularly in the Town of Wellton, and increasing train traffic, averaging around 49 trains a day in 2010. This could potentially double as Union Pacific completes its double-tracking project in Yuma County.

Concerns for this area are rooted in the fact that any emergency vehicle responding to a call south of the railroad track, with the only grade-separated crossing located at Avenue 33E, is very likely to have to cross an at grade railroad crossing. The chances of these crossings being blocked by a train have increased and will increase even further once the second track is completed allowing for 80 to 100 trains a day. Rail crossings are widely spaced in this area; usually there is a couple of miles between them with the only connection between these crossings being on unpaved roads. Therefore, if one crossing is blocked, the only alternative to waiting out the train is a several mile detour with much of it over unpaved roads. This could potentially pose a danger to public safety, particularly in times of bad weather. The increasing population and train traffic in this area increases the risk posed by this uncertain access. Area residents identified this as an important concern during the drafting of the Plan. To address this issue planning should begin for the construction of additional grade separated crossings or create paved connections of roads with crossings on the south side of the railroad tracks.

Safety Element - Railroad Crossings



YUMA COUNTY ARIZONA

- Grade Separated Crossing
- At Grade Railroad Crossing
- McElhaney Cattle Company
- Wellton Brach (Inactive)
- Union Pacific Sunset Route
- PavedRoadsSouthRR
- Military Boundary
- Incorporated Areas

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division

Date: July, 2011

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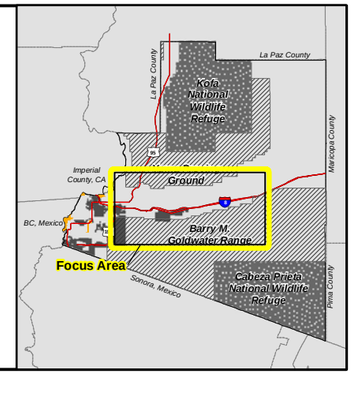


9.8 Safety Policies and Priorities

SPP.1: Promote disaster-resistant future development.

SPP.2: Increase public understanding, support and involvement in hazard mitigation and emergency response.

SPP.3: Increase Local capacity and commitment to become less vulnerable to hazards.

SPP.4: Improve hazard mitigation coordination and communication with federal, state, local and tribal governments.

SPP.5: Reduce level of human loss and damage and losses to existing and future critic cal facilities/infrastructure and other community assets due to floods.

SPP.6: Decrease vulnerability of community assets, especially critical facilities, located in the 100-year floodplain.

SPP.7: Reduce levels of human loss and damage and losses to existing and future criti cal facilities/infrastructure and other community assets due to wildland fires.

SPP.8: Reduce levels of human loss and damage and losses to existing and future criti cal facilities/infrastructure and other community assets due to earthquake.

SPP.9: Reduce levels of human loss and damage and losses to existing and future criti cal facilities/infrastructure and other community assets due to transportation in cidents.

SPP.10: Reduce levels of human loss and damage and losses to existing and future criti cal facilities/infrastructure and other community assets due to other natural/ hu man caused hazards.

SPP.11: All inhabited areas should be able to be accessed in as direct manner as possible by emergency vehicles in all weather and have the signage and addressing needed to direct emergency vehicles.

SPP.12: Reduce the long distances to the nearest health and emergency services for the those living in Dateland and far Eastern Yuma County.

SPP.13: Promote effective animal control in all areas of the County.

9.9 Safety Actions

SA.1: Update, develop and support general plans, ordinances and codes in accordance with state and federal regulations to limit development in hazard areas or build to standards that will prevent or reduce damage.

SA.2: Adopt and support local, state and federal codes that protect assets and new development in hazard areas.

SA.3: Educate the public to increase awareness of hazards and opportunities for mitigation actions.

SA.4: Promote partnerships among the federal, state, counties, local and tribal governments to identify, prioritize and implement mitigation actions.

SA.5: Monitor and publicize the effectiveness of mitigation actions implemented community wide.

SA.6: Improve existing capabilities to warn the public of emergency situations.

SA.7: Develop mitigation programs to enhance the safety of the residents of each community during an emergency.

SA.8: Continue commitment to research, development and training of stakeholders in new technologies and hazard mitigation techniques.

SA.9: Establish and maintain closer working relationships with federal, state, local and tribal governments and agencies.

SA.10: Implement policies, procedures and regulations which reduce the exposure to flood hazards.

SA.11: Maintain coordination with state and federal flood-related agencies.

SA.12: Maintain compliance with the National Flood Insurance Program (NFIP) requirements.

SA.13: Develop a comprehensive approach to reducing the level of damage and losses due to wildland fires.

SA.14: Improve local, state, federal and tribal coordination and support existing efforts to mitigate wildland fire hazards.

SA.15: Educate the public about wildland fire dangers and mitigation measures.

9.9 Safety Actions (continued)

SA.16: Develop a comprehensive approach to reducing the level of damage and losses due to earthquakes.

SA.17: Adopt and support local, state and federal codes that protect assets and new development in earthquake hazard areas.

SA.18: Coordinate with rail, aviation, waterways, highway stakeholders, military, tribal, federal, state, county and local transportation agencies to develop transportation incident mitigation cooperatives and agreements.

SA.19: Adopt and support local, state and federal codes to protect life, property and natural resources from natural/ human caused hazards.

SA.20: Construction of additional grade separated rail crossings to provide better emergency vehicle access to the area between the Gila and Mohawk Mountains south of the railroad tracks.

SA.21: Identify, map and list hazardous material storage facilities.

SA.22: Enhance efforts to recruit and train local resident as volunteer firefighters and emergency medical technicians, particularly in eastern Yuma County.

SA.23: Increase animal control in areas such as Dateland and the South Mesa where area residents have identified feral dogs as a growing problem.

SA.24: Work to bring a mobile medical clinic to the Dateland area on a regular basis as currently the nearest medical facility is in Wellton.

SA.25: Thin overly-dense vegetation along riparian ecosystems, particularly when within 30 feet of buildings or structures.

SA.26: Use the existing fire district in the Martinez Lake area as a mechanism to better equip the fire station located there.

SA.27: Amend the Zoning Ordinance to prohibit the storage of combustible materials in areas that have been cleared as fuel breaks.

Section Ten—Energy Element

10.1 Introduction

The function and operation of public and private institutions, businesses and homes in Yuma County and the nation as a whole are dependent upon a sufficient supply of affordable energy. Yuma County is dedicated to promoting sound energy policies.

Yuma County community members and businesses are aware of the need to promote sustainable use of energy throughout their daily lives. Increasing costs of energy coupled with environmental concerns related to pollution and consumption of natural resources affirm this awareness. Yuma County officials, employees and business owners are aware of the need to become more efficient consumers of energy through effective building techniques and use of alternative energy sources. The effort to be more efficient consumers of energy requires a collaborative effort between all Yuma County community members to reduce demand and increase efficient energy use within Yuma County. Alternative energy resources can be promoted to assist Yuma County to achieve efficient energy consumption.

Yuma County recognizes the need for energy efficiency. The Energy Efficiency and Conservation Block Grant (EECBG) Program, funded for the first time under the American Recovery and Reinvestment Act of 2009, authorized in Title V, Subtitle E of the Energy Independence and Security Act of 2007 (EISA) and signed into Public Law (PL 110-140) on December 19, 2007, provides funds to units of local and state government, Indian tribes, and territories to develop and implement projects to improve energy efficiency and reduce energy use and fossil fuel emissions in their communities. The Program is administered by the Office of Weatherization and Intergovernmental Programs (WIP) in the Office of Energy Efficiency and Renewable Energy (EERE) of the U.S. Department of Energy (DOE). The Yuma County Board of Supervisors has received funds from this program which have been utilized to perform an energy audit on all County buildings to increase energy efficiency of these buildings.

Public participation was the single-most vital element in the creation of the 2020 Yuma County Comprehensive Plan. Multiple public meetings were held by Planning staff at locations all across the County at which the Energy Element was discussed. At these meeting issues regarding energy that residents felt needed to be addressed were gathered. The concerns of residents brought up at these meetings are reflected in the policies and planned actions that are set forth in this element.

The energy policies and priorities section contains the policy positions and priorities of Yuma County regarding energy efficiency within unincorporated Yuma County. The policies and priorities contained within Section 10.5 are derived from comments and feedback from residents from across the County, comments from stakeholders, and from detailed plans, policies and ordinances regarding energy Yuma County will support the applications of grants, projects and policy changes that will further advance these policies and priorities.

10.2 Existing Conditions

Energy availability and consumption in Yuma County is crucial for the operation and daily lives of Yuma County and its community members. This is especially apparent in the summer months when temperatures can exceed 120 degrees.

A typical home in Yuma County has an average annual use of 11.397 kilowatt-hours (kWh) of electricity. Annually from 2005 to 2010 Yuma County population growth averaged 1.5% annually. During this same time electricity usage grew at a rate of 2.3% annually. As the demand for electricity continues to increase, production must increase along with reliable infrastructure to deliver power to Yuma County consumers.

Energy Generation in Yuma County

Arizona Public Service's (APS) Yucca Generating Station located in Yuma County provides an abundance of energy for Yuma County. The natural gas fueled Yucca Power Plant consists of six combustion turbine units that produce nearly 243 megawatts; the Yucca Power Plant also includes a 75 megawatt steam turbine and a 20 megawatt combustion turbine.

Power is also delivered to Yuma County from the Palo Verde Nuclear Generating Station located in Maricopa County. The Palo Verde Nuclear Plant has been the largest power producer of any kind in the United States since 1992, producing more than 4,000 megawatts of electricity annually. Palo Verde uses treated effluent from several municipalities to meet its cooling water needs, unlike other nuclear plants in the United States which sit atop a body of water. Power is delivered to Yuma County via the Hassayampa to North Gila 500kV transmission line.

Power Transmission Facilities in Yuma County

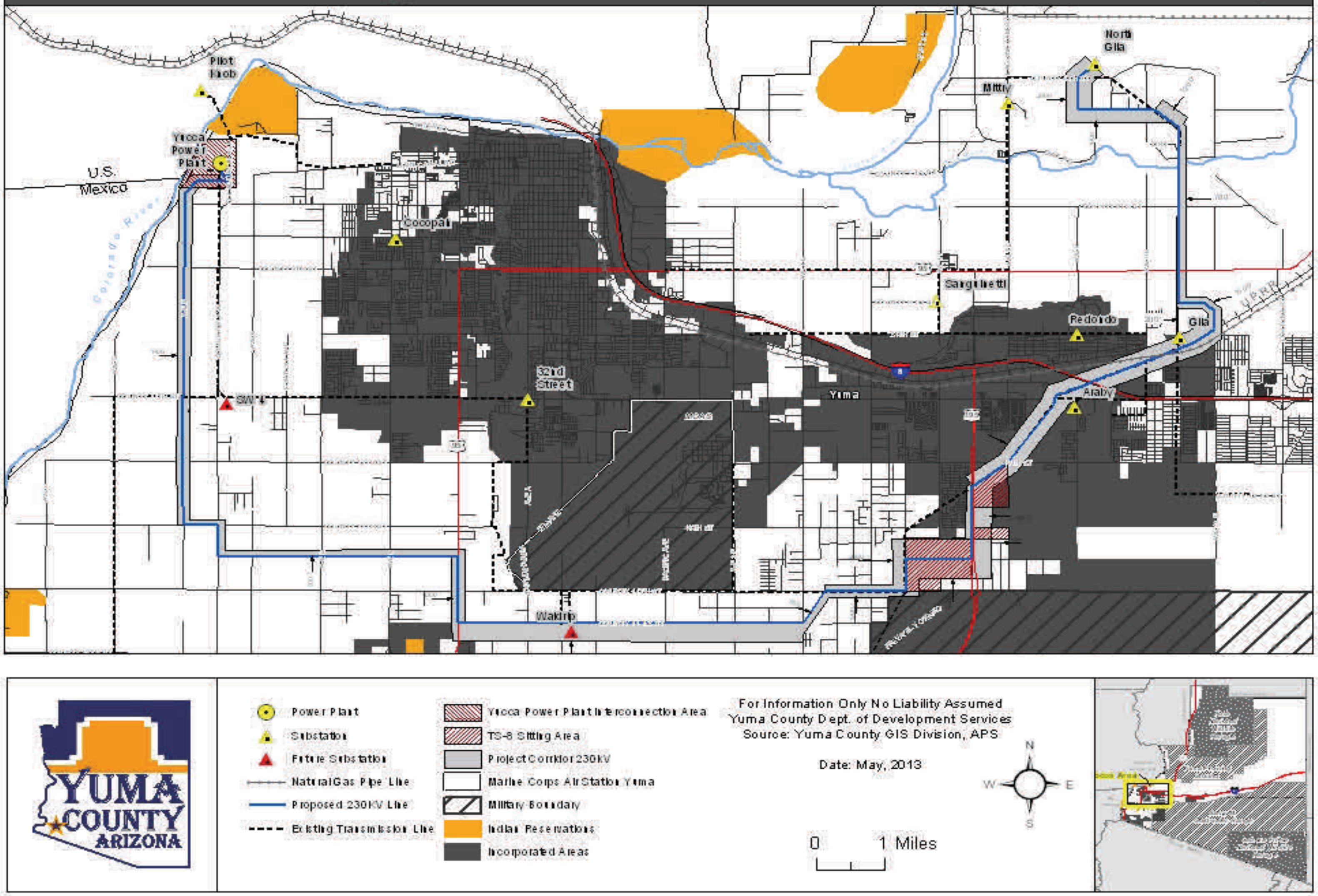
The Hassayampa to North Gila 500 kV transmission line delivers power from the Palo Verde Nuclear Generating Station in Maricopa County. This high voltage power line runs west from the power plant, supplying power to residents of eastern Yuma County, and then connects to the North Gila sub-station maintained by APS. From the North Gila sub-station power is then delivered throughout the grid via a system of 69 kV transmission lines.

A similar 69 kV transmission line from the Yucca Power plant in western Yuma County supplies power to County residents. Numerous transmission lines are located on arterial streets and other suitable areas throughout the County. Numerous electrical substations are located throughout Yuma County which act to reduce the voltage of power transmission lines for connection to the local power distribution system to homes and businesses.

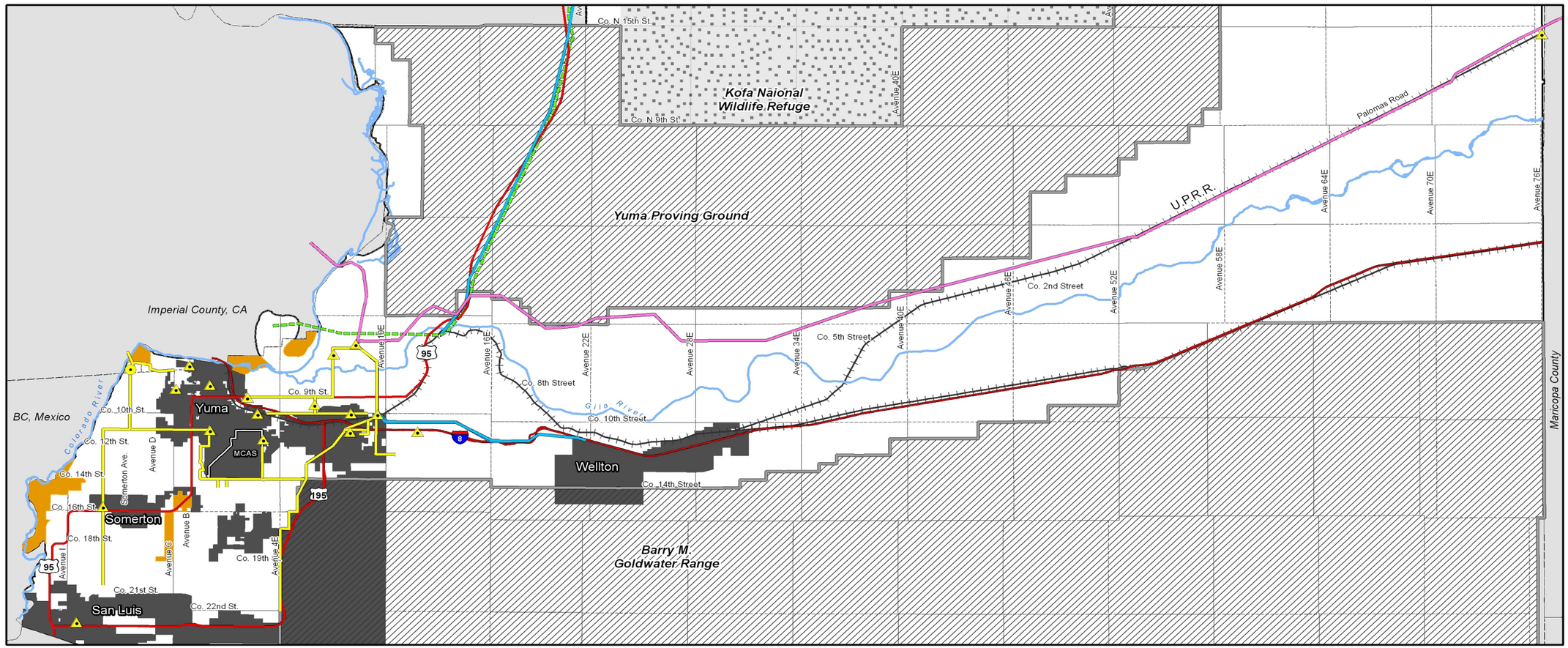
As Yuma County grows and the demand for power increases, utility providers must both improve existing and construct new infrastructure. Yuma County is dedicated to working with utility companies to mitigate any negative impacts this infrastructure could have on the local environment and its residents, while allowing expansion to serve residents' needs. The placement of electric power lines (115 kV and above) is decided through a state regulatory process that includes public input. Yuma County provides input into this process for facilities within the county. The Power Plant and Transmission Line Siting Committee makes recommendations on placement of the power lines to the Arizona Corporation Commission. The Commission has final approval of power line routes.

The North Gila to TS-8 to Yucca 230 KV transmission line project map depicts the future Arizona Public Service (APS) 230kv Electric Transmission Corridor that was approved by the Arizona Corporation Commission on February 2, 2012. The first phase of this future transmission line extends from the existing North Gila substation to the future TS-8 substation and is currently planned to be constructed by 2015. The second phase of the project will extend from the TS-8 substation to the existing Yucca Power Plant. The construction timeframe for this segment is currently unknown, but is at least 10 years in the future. Additional information about this project can be accessed at APS's website.

Energy Element - North Gila to TS-8 to Yucca 230kV Transmission Line Project



Energy Element - Yuma Area Transmission Plans



YUMA COUNTY ARIZONA

Utilities

- Substation
- Power Plant
- 69kV Transmission Line
- 115kV Transmission Line
- 161 kV Transmission Line
- Natural Gas

- Incorporated Areas
- Military Boundary
- Marine Corps Air Station Yuma
- Indian Reservations
- National Wildlife Refuge

For Information Only No Liability Assumed
Yuma County Dept. of Development Services
Source: Yuma County GIS Division

Date: June, 2011

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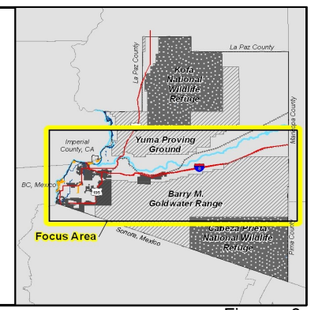


Figures 0:

10.3 Energy Conservation and Efficiency

Virtually all the energy used in Yuma County in 2010 came from nonrenewable sources. Yuma County can mitigate potential negative impacts of traditional energy sources by supporting preservation of agriculture lands, effective land use planning patterns, alternative energy sources and supporting emerging energy technologies. The practices outlined in this section will help Yuma County become more energy efficient.

Sustainable Building

Sustainable building or "green" building involves implementing various practices that minimize the depletion of natural resources, water and energy consumption and construction waste. Sustainable building practices are healthier for the occupants and the environment. When properly utilized they conserve energy and water and limit environmental impacts.

The US Department of Energy's Energy Savers Handbook states that in a typical 2,000 sq. ft. home, 40% of the annual energy bill can be attributed to heating and cooling costs. New and existing homes can be upgraded and made 20-25% more energy efficient by taking steps such as increasing insulation and sealing the building envelope to reduce air infiltration, provide shading for windows from direct exposure to sun, adding dual pane windows and replacing inefficient heating, ventilation and air conditioning (HVAC) systems. In addition to these steps, additional ways to make a home or business more energy efficient are listed below:

- Getting an energy audit of your home or business.
- Using energy efficient lighting and utilizing natural lighting.
- Weatherizing and sealing any air leakage.
- Providing shading with window sunscreens and architectural elements such as recesses, overhangs, patios and awnings.
- Upgrading to programmable thermostats.
- Installing and maintaining low water landscaping.
- Utilizing energy efficient appliances.
- Insulating hot water heater tank and pipes.
- Replacing inefficient doors and windows using Low-E and dual and triple pane windows on south and west exposures to reduce heat loss and gain.
- Replacing appliances and HVAC with more energy efficient systems when replacement is necessary.

10.4 Alternative Renewable Energy Sources

Energy-efficient improvements to buildings, appliances, equipment and construction will assist Yuma County to reduce energy consumption and increase efficiency. However, as technologies are perfected, a shift to renewable energy sources will play a crucial role in energy consumption. Renewable **e**nergy is energy which comes from natural resources such as sunlight, wind, and geothermal heat which are naturally replenished. Yuma County will provide support for the development of renewable energy sources which are in harmony with existing development and land use patterns throughout the County. These alternatives will be necessary to meet current and future needs and to lessen the region's dependence on non-renewable energy sources. Some of the renewable technologies listed below may be more suitable to the climate and geography of Yuma County. Ultimately the development of these alternative and renewable energy sources will depend on their availability, cost and public support.

Renewable Energy Sources:

Biomass: Any plant-derived organic matter. Biomass available for energy on a sustainable basis includes herbaceous and woody energy crops, agricultural food and feed crops, agricultural crop wastes and residues, wood wastes and residues, aquatic plants and other waste materials including some municipal wastes. Biomass is a very heterogeneous and chemically complex renewable resource.

Geothermal Energy: As used at electric power plants, hot water or steam extracted from geothermal reservoirs in the Earth's crust that supplies to steam turbines at electric power plants that drive generators to produce electricity.

Hydrogen Power: The use of moving water to drive a turbine generator to generate electricity.

Solar Energy: The radiant energy of the sun which can be converted into other forms of energy, such as heat or electricity.

Wind energy: Energy present in wind motion that can be converted to mechanical energy for driving pumps, mills and electric power generators. Wind pushes against sails, vanes, or blades radiating from a central rotating shaft.

10.5 Energy Policies and Priorities

EPP.1: Support the provision of adequate energy for the future while protecting the natural environment and resources.

EPP.2: Maintain cooperative working relationships with energy stakeholders in Yuma County.

EPP.3: Increase public understanding, support and involvement regarding energy issues.

EPP.4: Promote the energy efficiency in Yuma County.

EPP.5: Promote reduction of energy demand through community planning.

EPP.6: Support growth of renewable energy in Yuma County.

EPP.7: Increase local knowledge and commitment to become more energy efficient through sustainable building practices.

10.6 Energy Actions

EA.1: Work with utility providers through the planning process to identify appropriate locations and buffering for future energy generation and transmission projects.

EA.2 Keep current information and review development proposals from utility providers to ensure an understanding of where facilities may be and to keep citizens and businesses informed.

EA.3 Work closely with utility providers during planning and evaluation of development plans to access cumulative, county-wide impacts on energy availability and reliability.

EA.4 Yuma County will set an example by improving energy efficiency and use of renewable sources in County facilities and equipment when economically feasible.

EA.5 Yuma County shall replace electrical equipment with more energy efficient equipment (appliances, HVAC, lighting) when necessary and when economically feasible.

EA.6: Promote energy efficient construction and effective land use patterns.

EA.7: Create informational brochures for distribution to contractors and homeowners for rooftop solar panels and water heaters.

EA.8: Create information packets and outreach programs to educate Yuma County residents on energy efficiency in the home and office.

EA.9: Provide energy conservation information on the Yuma County website with links to energy providers.

EA.10: Assess current plans and identify potential locations for renewable energy projects.

EA.11: Promote tree planting as a way to reduce summer cooling loads in homes and buildings.

Section Eleven—Housing Element

The Housing Element describes existing and projected housing market conditions in Yuma County, and the County's approach to addressing housing conditions. Existing and projected housing market conditions are categorized by variety, quality and affordability. As consumer preferences and expectations related to housing type, size, quality and affordability also contribute to housing conditions, socio-economic conditions are also described. Existing and projected socio-economic and housing market conditions are more fully discussed in the June 2012 *Housing Needs Assessment*, which serves as the basis for this Housing Element.

11.1 Housing Variety

Housing variety is defined as the types of units that comprise the housing market and includes site-built single-family and multi-family units, and manufactured housing and mobile home units. A variety of housing types provide choices for both owners and renters.

In 2010, countywide 45,050 (49%) of the housing stock consisted of single-family units, 31,144 (34%) were manufactured housing units or mobile homes, 11% were multi-family units, and 3% were Boats, RVs and similar units. From 2000 to 2010, more than three quarters (77%) of the units added to the Yuma County housing stock were single-family, while one of five (18%) were manufactured housing and one in 25 (4%) were multi-family. In unincorporated Yuma County 63% of the added housing stock was single-family and 37% was manufactured; no new multi-family housing units were developed outside of incorporated areas.

Countywide in 2010, 71% (49,606) of households were owners and 29% (20,683) were renters. Eight of ten (31,345) single-family units were owner-occupied. Renters were just as likely to occupy single-family units (8,074) as multi-family units (8,272); 3,920 renters occupy manufactured housing units. Owner occupancy is also directly related to the number of bedrooms in a housing unit. Zero bedroom (efficiency) units are 2% (1,290 units) of the housing stock and are 64% renter occupied, while five bedroom units are 1% (895 units) of the housing stock and 85% are owner-occupied. Two- and three-bedroom units are the largest proportion of the housing stock - forty percent (28,167) of occupied housing units are three bedroom units, and another quarter (11,762) are two bedroom units.

Households with higher incomes are more likely to occupy single-family housing. Forty-two percent of owners with annual incomes below $20,000 occupy single-family units compared to 75% of owners with annual incomes $75,000 or more. Among renters 27% with annual incomes below $20,000 rent single-family units compared to 65% of renters with annual incomes $75,000 or more.

More than half (55%) of households occupying single-family unit structures are cost burdened or pay more than 30% of household income for housing, compared to about one-third (37%) of households occupying manufactured housing or 5+ unit structures. Housing cost burden among occupants of single-family housing is generally higher where the single-family housing stock is both newer and more prevalent.

Due to a current over--supply of housing brought on by the economic recession and mid-decade real estate bubble it is anticipated that new housing production will be minimal until the current excess supply is absorbed. Most housing economists agree that 2012 marks the half-way point through a 10-year adjustment and that by 2017, a more traditional rate of housing starts will resume.

Demographic shifts will dictate the types of housing that will be in demand as new housing production resumes. Of significance in Yuma County are longer life spans leading to a growing elderly population, the large number of young people who will enter adulthood and form new households, and a shift towards smaller families. Research conducted by the National Association of Realtors Smart Growth Program indicates that the aging population and younger households with fewer children generally want smaller lots, affordable homes, and easy access to community amenities and employment. Given demographic shifts, the demand for single-family homes on small lots is anticipated to increase, as is the demand for rental housing. Lower-density zoning may not accommodate this demand.

11.2 Housing Quality

Housing quality encompasses a range of issues that are central to quality of life, including housing safety, design and appearance, maintenance, energy efficiency, individual health, and community safety and livability. The age of the housing stock and overcrowding are the primary measures of housing quality.

Older housing units may be less energy efficient, resulting in higher utility costs for occupants. In addition, some materials, such as lead (in units built prior to 1978) and asbestos may represent health hazards to unit occupants. As of 2010, 35% of Yuma County housing units (30,651) were built prior to 1980, including 9,955 units in the unincorporated County.

Fifty-four percent of pre-1980 housing units (16,591) are owner occupied, thirty percent (9,190) are renter occupied, and sixteen percent are vacant (4,870). While the number of owners occupying older housing units is higher due to the higher homeownership rate, proportionately renters are more likely to occupy pre-1980 units – 44% of renters occupy older units compared to 30% of owners.

One of the challenges is ensuring both owners and landlords, particularly those of lower incomes, are able to maintain the older housing stock. Housing quality concerns can multiply when the older housing stock is renter-occupied. Rental property owners are generally seeking financial benefit through income generation, increased property value (appreciation), and depreciation (a tax benefit). All or some of these factors play a role in rental housing maintenance and older rental housing may offer few of these benefits.

Many older single-family and manufactured housing units provide affordable housing opportunities for lower income households. The County is working to preserve the existing housing stock through housing rehabilitation programs for owner-occupants. County policies that promote energy-efficient and sustainable construction materials also contribute to long-term quality housing stock. Expanding housing rehabilitation assistance opportunities to rental property owners may contribute to both housing quality and housing affordability.

11.3 Vacancy and Occupancy

Vacant and unattended residential properties can attract crime, cause blight, and pose a threat to public safety. Generally, a large volume of vacant housing indicates over-supply, yet vacant units are also common where there are large numbers of seasonal residents. According to the US Census Bureau, in 2010 one of five (19% or 16,433 units) Yuma County units were vacant, and 61% of vacant units (9,960) were held for seasonal use. Nearly two thirds (64% or 6,422 units) of vacant and seasonal units were located in unincorporated Yuma County. Among non-seasonal vacancies, 28% (1,887) were for rent, 14% (912) were for sale, 18% (1,187) were rented or sold but not yet occupied, and 38% (2,487) were held for "other" uses. Given the current over-supply of units and the economic recession, many "other" units may units in the foreclosure process.

11.4 Household Characteristics and Tenure

There is a direct relationship between income and tenure, and age and tenure. As income and age increase so does the rate of homeownership. Countywide, the homeownership rate increases from 52% for households with incomes below $20,000 to 86% for households with incomes above $75,000. Households with the greatest likelihood of two full-time wage earners also have higher incomes and are usually headed by a person between age 25 and 64. Countywide, with the exception of Wellton the homeownership rate increases steadily by age category from 21% of households headed by a person age 24 or younger to 87% of households headed by a person age 75 or older. Homeownership rates are higher among lower income households in the unincorporated County where a larger proportion of the population is also older – 70% of the lowest income households own.

Household composition and family type also influence the choice of tenure. In 2010, nearly six of ten (57%) Yuma County households consisted of a married couple family and married couple families have the highest homeownership rate (80%) of any family type. Comparatively, one of five (19%) households consisted of a single-parent family and single-parent households have the lowest homeownership rate of any family type – 53%.

Countywide, homeownership is most common (80%) among 2-person households and least common among 1-person (62%) and 3-person (61%) households. Tenure by household size varies significantly by jurisdiction. Larger households are more likely to purchase in jurisdictions with lower housing prices.

The homeownership and rental markets are intricately related and the inter-relationship plays out over time. During a time of economic expansion, renters often seek to purchase a home before prices rise; the increased demand results in increased purchase prices. As more renters choose to buy and prices increase, rental vacancy rates increase and rents go down. As rental property owners have difficulty renting units, some sell and selling prices go down as the supply of for-sale units increases. The reverse is true in a time of economic contraction. As demand for rental housing increases, vacancy rates decrease and rents go up. As rents go up, purchasing a home becomes more attractive again and the cycle restarts.

It is a widely-held belief that homeowners contribute significantly to community stability through their financial investment. Consequently, areas with high homeownership rates have been considered less vulnerable to displacement from gentrification and rising housing prices. Yet the recent economic recession, fueled in part by the housing finance crisis gives pause to this ideal and makes more clear the essential nature of affordable rental opportunities to community stability.

Renting provides for mobility among the workforce and an opportunity for potential purchasers to learn more about a neighborhood or community before making an investment. Renting also provides stable housing opportunities for households who do not desire to or cannot afford to purchase a home.

11.5 Housing Affordability

The industry standard for housing affordability is paying not more than 30% of gross household income for housing costs, although the standard among owners is often higher (40% to 50%) due to mortgage qualifying criteria that allow for a greater proportion of income expended for housing costs. These households are considered cost burdened.

The standard measures of housing affordability do not however measure choice or necessity; they simply measure the proportion of renters paying more than 30% of their income and owners paying more than 40% or 50% of their income for housing costs. Households may make choices such as living in more costly housing, overcrowded conditions, distressed neighborhoods, or poor quality housing, and sometimes far from employment. Households that make these choices may very well have affordability issues that are not measured by the industry standard, yet these choices influence housing demand.

11.5.a Rental Affordability

Simply defined, rental affordability measures the relationship between income and rent. The median rent in 2010 was $708/month requiring an annual household income of $28,320 or $13.62/hour for a full-time employee. Countywide, median monthly rents increased 39% from and rental affordability declined 16% between 2000 and 2010. An annual increase of $8,000 in household income from 2000 to 2010 was needed to afford the median rent.

According to HUD, the number of cost burdened renters in Yuma County increased 89% from 4,976 in 2000 to 9,421 in 2010. Increases in cost burden were seen at all income levels, with the rate of cost burden increasing at a higher rate among middle and higher-income renters. Increasing rates of cost burden among higher income households is in part attributable to the increased volume of and the cost of renting single-family units. More than half of households occupying single-family structures are cost burdened, compared to about one-third of households occupying manufactured housing or multi-family structures with five or more units.

While cost burden increased at a higher rate among middle- and higher-income renters, the rate of cost burden remains low in comparison to lower-income renters. Where nine of ten renters with incomes below $20,000 are cost burdened, one of twenty with incomes above $50,000 are cost burdened.

11.5.b 2010 Rental Unit Need

Housing unit need results when population grows or there is a mismatch between household income and housing costs. Based on 2010 US Census data there is an estimated existing gap of 2,395 affordable rental units, including 1,894 for households with incomes less than $10,000/year and 501 for households with incomes between $10,000 and $19,999; affordable rents, including utilities, for these households would be $250/month or less and $250/month to $500/month respectively. In the unincorporated County there is an estimated existing gap of 301 affordable rental units, including 160 units for households with incomes less than $10,000/year and 141 units for households with incomes between $10,000 and $19,999.

The existing supply of rental housing affordable to lower-income households is not sufficient to address the need for such units. There are 1,977 multi-family units restricted for occupancy by households earning less than 60% of the County median income, including 433 units for elderly or disabled persons and 1,544 for families. Additional affordable rental housing units would address this need.

11.6 Homeownership and Home Purchase Affordability

Homeownership affordability is also defined by the relationship between income and rent. Between 2000 and 2010, purchase prices increased 38% ($30,600), and home purchase affordability declined 4%, not accounting for mid-decade housing-boom price increases. Purchasing the median priced Yuma County unit in 2010 required annual household income of $31,400 or $15.10/hour for a full-time employee, up $7,100 from $24,300 or $11.68/hour for a full-time employee in 2000.

The collapse in stock prices and the plunge in short-term interest rates earlier in the 2000s made housing an attractive alternative investment; households saw an option to increase their rates of return at a higher rate than was possible through stocks and cash. Falling house prices have reversed this effect in the last several years. Many homeowners who purchased or refinanced

during the housing boom are faced with declining property values, inadequate income to pay higher housing costs associated with interest rate resets, and fewer borrowing options. Many of these households are among the newly cost-burdened and recently foreclosed.

The number of owners paying more than 50% of household income for housing increased 63% from 2,828 households in 2000 to 4,605 or 9% of owners in 2010. The higher mid-decade cost of housing meant more purchasers required financing and the percentage of homes without mortgages declined from 46% in 2000 to 30% in 2010.

Based on typical mortgage assumptions and average housing prices, extremely low- and low-income households cannot afford to buy an adequately sized home without housing cost burden. Moderate-income and middle-income households are generally able to afford moderately-priced units; the private sector addresses home purchase demand for this economic segment of the population.

Households who are still renting are likely doing so either by choice or because other factors limit their ability to purchase. Two factors limiting home purchase are interest rates and the types of financing available. While interest rates remain at some of the lowest levels in history, access to credit has constricted. Many homeowners and potential purchasers are not able to take advantage of low interest rates because of poor credit, a weak job market and tight mortgage credit. Between 2005 and 2011, loan volume in Yuma County decreased 70% from 11,567 loans to 3,619 loans.

11.7 Housing Needs of Specific Populations

Certain segments of the population may have more difficulty in finding decent affordable housing because of their special needs and circumstances. These segments include the workforce, elderly households, and households headed by or including a disabled person.

11.7.a The Workforce

Yuma County's economy is strongly based on agriculture, tourism, and the military, which often have higher proportions of lower paying jobs. The County has planned for preserving land uses for two important economic sectors – agriculture and defense facilities. Just as preserving land use is essential to long-term economic sustainability, so is access to a variety of quality and affordable housing options for the workforce, including agriculture and military personnel.

According to the Bureau of Labor Statistics, the top five occupations accounted for 65% of Yuma County employment, and three of the County's top five occupations have annual median wages below $20,000 – farming, sales and related, and food preparation and serving. Yuma County's 2010 median rent ($708) and purchase price ($112,000) are generally affordable to workforce households with two full-time wage earners, regardless of household size. Yet, three of five primary occupations with one earner or 1.5 earners at the median wage are challenged to

afford the median rent and purchase price; many of these workers are also eligible for housing assistance programs based on HUD's definitions of very-low, low and moderate-income.

Approximately 35% (660 units) of the rental unit need for extremely low income households is among the employed population. Additional rental units with varying bedroom sizes and monthly rents averaging $510 or less would benefit current and future employees in primary occupations, especially those without dual incomes. Purchase assistance and housing counseling and education could provide homeownership opportunities for employees in primary occupations.

In some communities, farm workers are one segment of the low-income population that is seeking quality affordable housing. In other communities, farming is the primary industry, with its own set of requirements that further complicate the effort to provide housing. Chronic underemployment, seasonal employment, and stagnating wages among farm workers put this population at a disadvantage over other low-wage workers. The reality of almost every farm worker housing project is the complexity of financing that involves a web of partners and various layers of subsidies.

Depending on rank, military personnel may also earn lower wages. Junior enlisted personnel are the segment of the military population most likely to have difficulty affording housing since the minimum wage for an enlisted person is $16,794 per year at the lowest rank (with less than two years experience). According to the City of Yuma, of the approximately 4,000 military personnel working at MCAS Yuma, the great majority- about 3,500 - are enlisted and approximately 1,550 enlisted families live off the base. Like farm workers, military families compete with other low-income households for housing.

While adequate income to rent, purchase and maintain quality housing is essential to economic and community sustainability, the ability of working households to find appropriate employment close to quality affordable housing plays a role in attracting and retaining a qualified and diverse employment base. Communities that lack diverse yet stable employment opportunities are challenged to sustain or grow.

Regionally, there is an imbalance between employment availability and housing availability. Three quarters of the employed population in San Luis and Somerton work outside of their jurisdiction and most must travel more than 30 minutes to work. The City of Yuma is the net importer of these employees. Employees who work in one community and live in another have higher transportation costs and less disposable income for the basic goods and services provided by local businesses. This negatively impacts employees' quality of life, local businesses and sales tax revenues.

11.7.b Special Populations

In addition to the workforce, community input suggests that two populations have unmet housing needs – the elderly and persons with development and/or physical disabilities, including those with severe mental illness.

Many elderly persons need assistance with finance, home maintenance and repairs, accessibility improvements, and routine activities. Rates of housing cost burden are high among the lowest income elderly households (age 65 and older) – nine of ten elderly renters and seven of ten elderly owners with incomes below 30% of the AMI are cost burdened. Of the estimated 2010 affordable rental unit gap for extremely low income households, approximately 25% (475 units) may be attributed to need among elderly renter households.

The US Census Bureau defines disability as: "A long-lasting physical, mental, or emotional condition. This condition can make it difficult for a person to do activities such as walking, climbing stairs, dressing, bathing, learning, or remembering. This condition can also impede a person from being able to go outside the home alone or to work at a job or business." Persons with severe mental illness are included in HUD housing need data for disabled households.

There are an estimated 7,615 householders with disabilities in Yuma County. Thirty percent (2,280) have incomes below 50% of the median income and an additional 16% (1,205) have incomes between 50% and 80% of the median income. According to HUD, seven of ten disabled renters and six of ten disabled owners with incomes below 50% of the AMI have some housing problem.

Persons with developmental and physical disabilities have layered, complex needs that demand broad strategies and resources to be effectively addressed. The unemployment rate for persons with disabilities is nearly double that for persons without disabilities and many have unrealized potential that results from inadequate economic and social supports. Housing problems among disabled households indicate need for both housing rehabilitation and additional housing options such as congregate living and permanent supportive rental housing. Supportive housing is a successful, cost-effective combination of affordable housing with services that helps people live more stable, productive lives. As much as 40% of the estimated 2010 rental unit need (760 units) for extremely low-income households may be attributed to households with disabilities.

11.8 Future Housing Needs

The following projections assume that the proportion of population will remain stable across jurisdictions and that income and tenure will continue the trend experienced between 2000 and 2010. Two growth scenarios were developed for the *Housing Needs Assessment* - a slow growth scenario assuming 4.8% population growth, based on pre-2000 growth patterns, and a moderate growth scenario assuming 8.5% population growth based on slow growth until 2015 and growth at the 2000 to 2010 growth rate from 2015 through 2020. In the slow growth scenario, the population will grow by 9,505 to 206,477 and households will grow by 3,263 to

73,552. In the moderate growth scenario, population will grow by 16,719 to 213,691 and households will grow by 5,883 to 76,122.

By 2020, the greatest increase in households will be among higher income households or those with incomes above $50,000. Assuming additional units are added to the stock, middle-income and higher-income households will have sufficient rental and ownership choices provided by the private sector.

Households living on fixed incomes and employed in low-wage jobs will continue to be a part of the socio-economic make-up of the County. In 2020 an estimated 38% or 25,289 households will qualify for housing programs assistance, including 4,506 in the unincorporated County. Countywide, an estimated 12,191 households will be very low income by HUD standards; these households are the most likely to need housing rehabilitation, rental assistance or subsidized rental units.

With growth in households comes the need for additional housing units. Assuming reasonable vacancy rates, under the slow growth scenario, an additional 3,991 housing units will be needed in Yuma County by 2020, including 1,254 in the unincorporated County. Under the moderate growth scenario, an additional 7,021 housing units will be needed in Yuma County by 2020, including 2,561 in the unincorporated County.

11.9 Governmental Barriers to Adequate Affordable Housing

While the provision of housing is predominantly a private sector, market-driven activity, all levels of government – federal, state and local – play a role in facilitating housing production and preservation. The primary role of local government is planning and process, while the primary role of state and federal government is to provide financial resources.

Zoning and other land use regulations at the local level may inhibit the provision of a variety of affordable housing options, yet land use regulations do not exclusively increase costs and barriers. Reasonable regulations contribute to the health and safety of residents and most regulations were created for the public good and to maintain a high standard of development. Regulations are excessive only when they artificially elevate housing prices without an equal increase in health and safety benefits. Based on HUD's Regulatory Barriers to Affordable Housing Development Questionnaire, the majority of County policies and processes do not detract from affordable housing development, yet the County does not have specific policies and processes that promote affordable housing development.

11.10 Resources and Delivery System

Yuma County and its private and nonprofit partners have a range of funding sources available to implement housing policies and actions. These resources include State, Federal and private sources, such as the Federal Home Loan Bank System and other private sources. Exploring additional funding opportunities will be essential to promoting and implementing affordable housing programs and policies.

Most programs require a mix of skills and experience to meet housing needs and produce or rehabilitate units. The private, nonprofit and public sectors each have unique skills, expertise and resources and the complexity of many housing needs lends itself to partnerships among organizations and sectors with complementary strengths.

The role of the private sector is to profitably fill demand for housing and skilled developers successfully assemble the human and financial resources to address housing demand. There are also private sector developers that specialize in affordable housing development, primarily the development of Low Income Housing Tax Credit Rental properties. Appropriate incentives to participate in affordable housing development are needed for the private sector to expand its role to address unmet housing needs in Yuma County.

There are twelve nonprofit organizations active in the housing market in Yuma County. These organizations provide a variety of housing-related services including: financial services – grants, loans, and counseling; development of land and buildings; and services combined with housing, such as self-help homeownership, supportive housing, and services for special needs populations. Many organizations provide more than one service.

Two Yuma County Departments have capacity and experience implementing housing programs. The Yuma County Development Services Department has primary responsibility to ensure that development is done safely and in the best interests of the community. The Development Services Department has expertise in the development process and housing rehabilitation programs, and experience with federal and state funding programs. The Housing Department manages Housing Choice Voucher and Public Housing programs and has expertise in affordable rental housing development and management.

While housing policies and actions are generally jurisdictional, housing markets are regional. The jurisdictions together developed the Yuma County Regional Development Plan (YCRDP), which represents one opportunity to cooperatively address housing quality, variety and affordability throughout the County. In addition to County Departments and the YCRDP, local jurisdictions have taken steps to address housing quality, variety and affordability. The incorporated communities of San Luis, Somerton and Yuma have included housing elements in their General Plans. Common goals and objectives of incorporated communities include: maintaining and enhancing the quality of existing housing; encouraging a variety of housing types to meet all socioeconomic segments of the population; focusing on high quality and sustainable development; and working closely with the private and nonprofit sectors to address the needs of low- and moderate-income households.

11.11 Housing Policies and Priorities

HPP.1: Provide an adequate housing supply with a balanced inventory of dwelling types and densities to meet the needs of present and future residents of Yuma County at all economic levels.

HPP.2: Preserve and expand the supply of a variety of quality housing units.

HPP.3: Maintain cooperative working relationships with affordable housing stakeholders in Yuma County.

11.12 Housing Actions

The following actions fall into five broad and inter-related categories:

1. Planning, Zoning and Development Standards
2. Financial Resources
3. Infill and Neighborhood/Small Area Revitalization
4. Community-based Programs
5. Management Practices

HA.1: Planning, Zoning and Development Standards

HA.1.1: Evaluate the feasibility of an incentive policy for affordable housing to promote development of affordable housing units for households with incomes below 80% of the area median income as adjusted annually by the US Department of Housing and Urban Development. Affordable housing development provisions could include density bonuses and flexible design standards such as minimum open space ratios, minimum site areas, and parking incentives.

HA.1.2: Encourage affordable housing development by:

a. Including housing affordability discussions in meetings with developers and during planning and evaluation of development plans.

b. Encouraging partnerships among planned developments and nonprofit organizations to develop housing for rent or sale to households earning less than the area median income and compatible with the planned development; and among property owners and private or nonprofit developers to encourage investment in the development, redevelopment, rehabilitation and adaptive reuse of land and buildings.

c. Creating affordable housing informational brochures for distribution to developers.

d. Incorporating housing affordability into the development review checklist.

HA.1.3: Encourage residential uses near employment centers and services to increase the jobs-housing balance by zoning or rezoning underutilized commercial property to residential or mixed-use zoning, and low-density residential to higher- or mixed density residential.

HA.1.4: When updating or amending land use plans evaluate the potential impact rezoning may have on existing businesses as well as future economic development and job creation potential.

HA.1.5: Review land use policies to incorporate the needs and preferences of a changing demographic, including seniors, couples without children and people living alone; and that adequate areas are designated for multi-family and manufactured housing to meet expected demand among households at various income levels, including very-low and low-income households.

HA.1.6: Through stakeholder interviews identify and map parcels that may have room for residential development that includes affordable housing units. Include surplus parcels, undeveloped or underdeveloped portions of actively-used sites, comercial and recreational property and low-density uses in areas suited for higher densities and all income levels.

HA.1.7: Promote energy efficient construction.

HA.2: Financial Resources

HA.2.1: Systematically review federal, state and private funding availability for a variety of affordable housing programs and projects. Pursue funding for specific activeties.

HA.2.2: Support applications from third parties for state and federal housing resources through letters of support, matching funds, land donation, coordination, and/or project / grant management services.

HA.2.3: Link economic development incentives with housing for employees or link affordable housing development with economic development incentives.

HA.3: Infill and Neighborhood/Small Area Revitalization

HA.3.1: Identify distressed neighborhoods or small areas with little private investment and explore the creation of a redevelopment district or revitalization area. Involve neighbor hood residents in the planning process and develop action plans to meet identified needs including social and community services, infrastructure, transportation, economic development, law enforcement and affordable housing.

HA.3.2: Develop infill incentives as a method to promote the production or rehabilitation of affordable housing close to existing infrastructure, shopping and services. Include density and zoning incentives and fee waivers.

HA.4: Community-based Programs

HA.4.1: Continue the owner-occupied housing rehabilitation program. Apply for CDBG and/or State Housing Funds to rehabilitate housing units occupied by low- and moderate-income households. Promote energy conservation through participation in home weatherization and energy audit programs. Secure housing rehabilitation assistance through deeds of trust and promissory notes to provide future funding for housing activities.

HA.4.2: Work with nonprofit agencies and employers to create and match housing assistance benefits.

HA.4.3: Conduct an assessment of housing quality and ownership conditions in areas where at least one-half of the housing stock was built prior to 1980.

HA.4.4: Support programs and organizations that provide:

a. Housing counseling and education and financial assistance programs for households entering the home purchase market or experiencing housing affordability concerns, and foreclosure prevention programs.

b. Short-term assistance to households that may be displaced as a result of foreclosure, eviction or job loss.

HA.4.5 Participate in home maintenance and repair clinics to assist property owners in making their own repairs.

HA.4.6: Sponsor tenant and landlord training on rights and responsibilities of each party and fair housing law.

HA.4.7: Support transitional housing, temporary shelter; and permanent supportive housing to increase housing options for people with special needs, including the elderly, homeless, victims of domestic violence, handicapped, mentally ill and disabled. Support may include funding source recommendations, letters of support, or grant funding priority.

HA.4.8: Provide support to nonprofit organizations to develop a mechanism to acquire and rehabilitate property for sale or lease to households earning less than the area median in-come. Support could include program design or financing such as CDBG or pursuit of other resources.

HA.5: Management Practices

HA.5.1: Maintain the organizational structure to finance, construct or manage housing for house holds earning less than the area median income or for other target populations.

HA.5.2: Incorporate housing quality, variety and affordability discussions into regional planning forums.

HA.5.3: Keep current market data and information to inform citizens, businesses and developers of current housing conditions, and to ensure that policies, programs and projects are appropriately targeted.

HA.5.4: Examine how zoning provisions, building codes, and land use updates impact the development of affordable housing and the cost of production of all units, not just affordable units.

HA.5.5: Maintain a one-stop shop for developers and other organizations interested in affordable housing production, rehabilitation or related services.

HA.5.6: Develop a public input process for all key programs, projects and policies. Periodically assemble agencies and organizations, including government, nonprofit and private, that are essential to moving forward with affordable housing policies and strategies. Focus discussions on market conditions and relevant programs, policies and incentives to address each. Utilize input when considering and recommending policies and strategies.

HA.5.7: Prior to developing new or expanding existing affordable housing programs or resources, assess organizational capacity to successfully deliver each.

HA.5.8: Create shared administration and expertise across units of government wherein each jurisdiction expands the capacity to deliver specific types of programs or projects and through inter-governmental cooperation assists other units of government.

HA.5.9: Map the location of Section 8 voucher holders and identify common characteristics of selected geographic areas and housing types.

HA.5.10: Develop a portfolio of projects and programs to build on-going support for affordable housing activities. Include photos, describe appearance, design, and impact on individuals, neighbors and neighboring properties, employers, sales tax revenues, traffic reduction, and other visual/statistical data.

Section Twelve—Cost of Development

12.1 Introduction

There are costs when local jurisdictions provide new or expanded public facilities to new development. This cost is rising at a pace that exceeds local government revenue generating capabilities. The increasing cost of maintaining existing infrastructure, combined with declining public support for taxation, is forcing jurisdictions to seek funding alternatives. Development agreements and development fees shift some of the burden of paying for new or expanded facilities from public entities to private developers. Providing adequate infrastructure is increasingly important as the county grows. It is prudent to implement a plan to provide necessary public services to developing areas without placing a financial burden upon county government and existing residents. A basic premise of this Element is to provide background information recognizing the direct link between the build-out of land and the costs of providing infrastructure to new developments. This Element considers how new development should pay a 'fair share' for the increase it creates in county infrastructure costs.

12.2 Overview

The State Legislature has authorized local agencies to collect development fees from new development projects. Different methods in assessing development fees have been implemented around the State. The fees range from $0 to as high as $8,570 per single family dwelling. The average fee is $3,000. The majority of these fees must be paid in addition to any building, grading, encroachment or permit fees at the time a building or manufactured home placement permit is issued.

Various names given to development fees include:

- Impact fees
- Cost of Development fees
- Pro Rata fees
- Development Impact fees

Types of public facilities for which the fees are imposed include:

- Transportation expansion (but not for maintenance of existing roads)
- Water and sewer line improvements
- Police and fire services
- Park/open space acquisition
- Library funding
- Trash/sanitation services

Water and sewer projects capture the greatest portion of assessed development fees. Other beneficiaries in descending order are: streets, parks, libraries, fire and police departments and sanitation.

12.3 Growing Smarter and Growing Smarter Plus

The Cost of Development Element is optional for Yuma County. The Element is mandatory for counties having a population of more than two hundred thousand persons. Specific provisions contained in *Growing Smarter Plus* include:

Arizona Revised Statute, Title 11

- **Chapter 6** - County Plan and Zoning Article 2:
  §11-821. County plan; definitions
  4. A cost of development element that identifies policies and strategies that the county will use to require development to pay its fair share toward the cost of additional public facility needs generated by new development, with appropriate exceptions when in the public interest. This element shall include
  (a) A component that identifies various mechanisms that are allowed by law and that can be used to fund and finance additional public services necessary to serve the development, including bonding, special taxing districts, development fees, in lieu fees and facility construction, dedications and privatization.
  (b) A component that identifies policies to ensure that any mechanisms that are adopted by the county under this element result in a beneficial use to the development, bear a reasonable relationship to the burden imposed on the county to provide additional necessary public facilities to the development and otherwise are imposed according to law.

- **Chapter 8** - Development Fees; Article 1:
  §11-1101**.** Development agreements
  A. A county, by resolution or ordinance, may enter into development agreements relating to property located outside the incorporated area of a city or town.
  §11-1102. County development fees
  A. If a county has adopted a capital improvements plan, the county may assess development fees within the covered planning area in order to offset the capital cost for water, sewer, streets, parks and public safety facilities determined by the plan to be necessary for public services provided by the county to a development in the planning area.

12.4 Assumptions

Several assumptions serve as the basis to include a Cost of Development Element in the Plan. Currently, the cost of providing services and infrastructure to new development is transferred to the county/taxpayer by default because the county has no defined policy to create a financial obligation on the developer to provide infrastructure and services. As a consequence, the county must provide services and infrastructure as a matter of public health, safety and welfare. Additional assumptions include:

- There is no mechanism to project and assign cost for the density and intensity of development under the Land Use Element of the Plan.
- Public participation indicates a deficiency in public infrastructure, particularly roads.
- A rational and legal nexus must be established between the imposition of fees and the public goods and services that will be provided.
- New development may locate outside of the jurisdiction if the private sector determines the county has not established a clear methodology for projecting and assigning development agreements and development fees.

12.5 Infrastructure Financing Mechanisms

Statutes permit several finance mechanisms to fund new infrastructure, facilities and equipment. Mechanisms available to the county for funding expansion of physical infrastructure and services have binding restrictions on the county and developer and include:

- Development Agreements
- Development Fees/Impact Fees
- Special Districts
- Community Facilities Districts
- Revenue Bonds
- Primary and Secondary Property Taxes
- Sales Tax
- Specialty Industry Tax (e.g. Hotel Bed Tax)
- Excise Tax
- User Fees
- Planned Unit Development (PUD)

The two preferred means of financing infrastructure and "fair share" payments with new development are development agreements and development fees.

Development Agreements - Development agreements are authorized by A.R.S. §11-1101. A development agreement specifies the obligations of the governmental and the private developer. The responsibility for financing public infrastructure and services is clearly defined within the agreement. The criteria by which the county may enter into an agreement, exact performance criteria and objectives for all parties are contained in A.R.S. §11-1101.

Development Fees/Impact Fees - Development fees are authorized by A.R.S. §11-1102. Generally, impact fees are charges levied against new development in order to generate revenue for capital improvements to serve new development. They are controversial due to their financial impact on the home builder or contractor. They are charged at the time the building permit is issued.

Development fees are scheduled charges to new development to generate revenue for the construction or expansion of capital facilities located outside the boundaries of the new development (off-site) that benefit the contributing development. As currently applied, development fees cannot be used for operation, maintenance, repair, alteration or replacement of capital facilities. The fees are assessed and dedicated for the provision of water and sewer systems, roads, parks, libraries, police and fire facilities, general government administrative buildings, emergency medical facilities, hospitals, schools and even solid-waste facilities.

The county can collect development fees to pay for the expansion of public facility capital improvements and public services (streets, water, sewer, parks and public safety facilities) through the building permit process. These need to be specifically identified or covered by the county's Comprehensive Plan and/or Capital Improvements Plan. These plans specify the level of service for each new facility which is to be the subject of a development fee. The standards apply equally to new and existing development.

12.6 Implementation

Development fees assessed in the county would provide a means of fairly assessing the costs of providing capital facilities to the new development. However, development fees pose several issues: legal, economic, technical, administrative, policy and financing. Furthermore, to develop and administer a program that meets ethical and legal standards requires a substantial commitment of time and energy and must be carefully designed and properly documented.

Due to the statutory requirements and the need to be fair, setting development fees is a complex issue. Development fees must reflect proportional costs, rational nexus criteria and development credits. These calculations are neither simple nor straightforward. Due to the number of variables, an expert should assess such a fee to insure validity. The use of a consultant to create and document fee calculations is appropriate.

A critical component to development fees is a needs assessment as stipulated in A.R.S. §11-1102. Public participation indicates assessing development fees for roads is the greatest need in the county. Nonetheless, if a development fee were assessed, the geographic attributes of the county permits the use of differing designated service areas.

Implementation of any development agreement or development fee is subject to adoption by the Board of Supervisors. The prospective ordinance should set forth specific administrative authority and program paramters. The ordinance(s) must be consistent with applicable legislation. Important legal criteria include:

- Capital facilities financed with development fees must be a consequence of new development rather than arising from existing development.
- Development fees imposed on new development may be no more than a proportionate share of local government's cost of the new capital facilities needed to serve new development.

- Development fee revenue must be managed and expended at such a time and in such a location the development paying the fee will receive a substantial benefit from the capital facility.
- Development fees are imposed only for those types of public facility capital improvements and services specifically identified in or covered by the Yuma County 2020 Comprehensive Plan or county Capital Improvements Plan.

12.7 Into the Future

The Yuma County 2020 Comprehensive Plan period is relatively short. Ideally planning should encompass a 25 to 50 year period of time and it is imperative to maintain perspective relative to development agreements and development fees. With projected growth and development, the need for adequate public infrastructure and services will steadily increase. Consequently, the Cost of Development Element will serve as a foundation for a development agreement and development fee program that will extend past the 2020 planning period.

Section Thirteen—Public Participation

Public Information/Public Participation Program (PI/PP) - This is a program that supplements the public participation requirements of *Growing Smarter Plus*. This program guides efforts to educate and involve citizens in long range planning processes.

13.1 Introduction

On October 19, 1998, the Board of Supervisors adopted the *Yuma County 2010 Comprehensive Plan Public Information/Public Participation Program* (PI/PP). This represents the county's commitment to involving residents and stakeholders in long range planning efforts. The PI/PP created opportunities for meaningful citizen participation and was an essential component to the development of *Yuma County 2010 Comprehensive Plan*.

Providing county residents with the necessary information to influence future planning decisions requires their continued and increased participation. Therefore, it is necessary to identify how the community will be informed and participate in future additions or modifications to The Plan. The purpose of this public participation element is three-fold:

- Identify key components and continued development of the PI/PP.
- Consider techniques to involve citizens in the review of the Plan that exceeds minimum levels of participation mandated by the State.
- Outline the process and public notification procedures in the review of any minor or major amendment to the Plan.

13.2 Regulatory Compliance

Planning for public participation is authorized through legislative mandates and the *Growing Smarter Act*. The PI/PP procedures contained in this element are in compliance with Arizona Revised Statutes.

Arizona Revised Statutes, Title 11

Chapter 6 - County Planning and Zoning; Article 1:

> §11-806. Powers and duties; comprehensive plan
> D.1. The Board of Supervisors shall adopt written procedures to provide effective, early and continuous public participation in the development and major amendment of comprehensive plans from all geographic, ethnic and economic areas of the county. The procedures shall provide for: (a) The broad dissemination of proposals and alternatives

(b) The opportunity for written comments (c) Public hearings after effective notice (d) Open discussions, communication programs and information services, and (e) Consideration of public comments.

Arizona Revised Statutes, Title 11

Chapter 6 - County Planning and Zoning; Article 2:

> §11-824. Adoption and amendment of county plan by board of supervisors; expiration and re-adoption. A. The board of supervisors may adopt the county comprehensive plan as a whole or by successive actions adopt separate parts of the plan. The adoption or re-adoption of the comprehensive plan or any amendment to the plan shall be by resolution of the board. C. The adoption or re-adoption of, or a major amendment to, the county comprehensive plan shall be approved by the affirmative vote of at least two-thirds of the members of the board. All major amendments proposed for adoption to the comprehensive plan by the board shall be presented at a single public hearing during the calendar year the proposal is made. The adoption or re-adoption of a county plan, and any major amendment to a county plan, shall not be enacted as an emergency measure and is subject to referendum as provided by Article IV, Part 1, Section 1, Subsection (8), Constitution of Arizona, and Title 19, Chapter 1, Article 4.

13.3 PI/PP

The PI/PP is designed to meet and exceed State requirements for citizen participation. It is divided into five categories. The categories overlap and work in conjunction with each other to produce a comprehensive and effective program.

1) Composition and Maintenance of a Core Contact List:

The core contact list includes interested parties, both special interest and general public. These parties are socially responsible and dedicated agencies and/or individuals whose role is more active that the general public's due to their special interest in the Plan and the community. Core contacts receive notice of public gatherings, bulletins, surveys and other miscellaneous items.

Outside of public agencies, **Citizens Advisory Groups** (CAGs) compose the majority of the core contacts. CAGs are made up of county citizens with varied areas of interest who serve as direct links to the Plan. Multiple CAGs exist for different areas of the county. A list of members is maintained.

2) Public Gatherings:

Public participation gatherings go beyond the mandatory public hearings and include open houses, stakeholder meetings and presentations to organizations

throughout the county and region. The purpose of the extended public gatherings is to develop working relationships, establish lines of communication, increase education on the planning process, fulfill the community's will to design its own future and foster a means for understanding and implementing the Plan. Notification, location and time of public gatherings encourage attendance, participation and provide for accommodations of special needs.

3) Media:

Development and implementation of the Plan utilizes a variety of media sources to publicize and obtain a broad-base of notification and participation. Both the media and the utilization of digital media platforms are used as information distribution and gathering tools and are critical in sustaining participation. Media outlets and digital media tools utilized for distribution of media kits, press releases, news conferences, Public Service Announcements, public notices and hearings include:

- Newspapers and Regional Print Media
- Vision 2020 Newsletter
- Radio
- Web page www.yumacountyaz.gov/INDEX.aspx?page=221
- Television
- Area Event Calendars and Bulletins
- Facebook www.facebook.com/#!/yumacountyaz
- Twitter account twitter.com/YumaCountyAZ

The provisions of Spanish language materials and an interpreter are evaluated on a case by case basis and provisions to accommodate all requests are made.

4) Public Comment Retrieval:

Public comment is needed to insure all interested parties and citizens of the county are well represented. Public comment includes suggestions, points of view, support, opposition and constructive comments regarding The Plan and the planning process. Public comment retrieval utilizes formal and informal means to draw information from individuals and agencies. Comments are received and documented through commentary, writing, telephone, e-mail, and social media postings. Documentable forms of retrieval used include:

- Email - contact.dds@yumacountyaz.gov
- Surveys and mailings
- Outreach Programs
- Fax - (928) 817-5157
- Public Hearings
- Facebook page at https://www.facebook.com/#!/yumacountyaz
- Twitter account at: https://twitter.com/YumaCountyAZ

5) Public Outreach:

Public outreach encompasses community education and information distribution to foster public support and encourage a sense of community. Outreach pro grams utilize all facets of the PI/PP and focus on educating the public. Some outreach activities that can be conducted include, but are not limited to, radio shows, television, digital announcements on Facebook, Twitter or the Yuma County Webpage, and workshops simulating land use development.

13.4 Strategies to Strengthen the PI/PP

Continuing education programs are critical. Sustaining multiple opportunities for the public to become involved in the development of the Plan and the planning process is equally important. For future planning activities the county needs to continue to identify and pursue other ways to increase public knowledge, participation and means to identify citizen issues.

Community Planning Collaboration - Citizens are involved in individual zoning and Yuma County Comprehensive Plan amendments through contact with the Planning Section. The Section oversees public information and education elements appropriate for collaboration. The Planning Staff is involved in the day to day role of administrating, interpreting and enforcing the changes brought about through implementation of the Plan.

Citizen Review Process - In compliance with Arizona Revised Statutes, Title 11, Chapter 6, the county provides guidelines for citizen review that notifies, informs and provides an opportunity for the public to comment prior to public hearing for zoning ordinance applications.

CAGs - CAGs have proven to be effective core contacts. Continued interaction, development and support of CAG's are important. CAG participants considered to display community leadership skills and a comprehensive and objective understanding of planning are considered key citizen planners. Future CAG programs need to continue to involve and mentor citizen planners.

Bi-Annual Update - Conducting workshops and open houses to ensure all interested individuals and groups in the community are actively involved in the bi-annual update and maintenance of the Plan elements is necessary.

Media Support Program - The Media Support Program needs to remain active after adoption of the Plan. Specific program features for each of the media to be utilized depend on the status of the Plan at any given time, access to media, staffing and available funding. Extending communications to core contacts and public agencies will remain a priority.

Digital Media Outreach - The inclusion and/or progression of digital forums and social media tools offers an excellent opportunity to directly and inexpensively connect with citizens of Yuma County and the public at large. The Planning Section will ensure all outreach activities including, but not limited to, land use amendments, Plan amendments and updates are promoted using both digital forums and social media tools such as the Yuma County Webpage, Facebook, and Twitter.

13.5 Amendment Process

An amendment to the Yuma County 2020 Comprehensive Plan may be initiated by: The Board of Supervisors, Planning and Zoning Commission or a private property owner. An application, narrative statement of the proposal and filing fee are required. Amendments to The Plan typically include the following:

- The incorporation of new elements as required by statute
- The re-adoption of the entire Comprehensive Plan every ten years.
- Revisions or updates to the text and/or maps of any existing element.

The Land Use Element is further categorized into two types of amendments: Minor Amendments and Major Amendments. Definitions, procedures and public hearing dates for minor and major amendments are outlined in the Land Use Element of the Yuma County 2020 Comprehensive Plan.

Public Hearings - For all amendments to the Plan, one public hearing will be held by the Planning and Zoning Commission. A second public hearing will be held by the Board of Supervisors prior to action being taken on the proposed amendment.

Major Amendments to the *Yuma County 2020 Comprehensive Plan* inclusive of the City/ County Joint Land Use Plan thereof would be accomplished through a single standardized public hearing process. The Comprehensive Plan major amendment process would include a staff recommendation, Planning Commission recommendation and Board determination. Amendments to the City/County Joint Land Use Plan on parcels that fall under the jurisdiction of Yuma County will be heard under the same procedure as major amendments to the Yuma County 2020 Comprehensive Plan. All major amendments proposed for adoption to the Comprehensive Plan by the Board of Supervisors shall be presented at a single public hearing during the calendar year the proposal was made in accordance with A.R.S. §11-822 and §11-824. The deadline to submit Major Amendments is June 15th.

Notification - For all Yuma County 2020 Comprehensive Plan amendments, notification of the public hearings will be provided in accordance with State Law in the following manner:

- A.R.S. §11-822. Before recommending the plan or any part, amendment, extension or addition to the board of supervisors, the commission shall hold at least one public hearing thereon, after giving at least fifteen days notice thereof by one publication in a newspaper of general circulation in the county seat. In addition, the notice shall be published in a newspaper of general circulation in the area to be affected, or adjacent thereto, if the area affected is other than the county seat.

In addition to the above state notification requirement, the county and/or applicant will utilize techniques to disseminate the information to a larger audience. The techniques encouraged are listed below and are dependent on the type and significance of the proposed amendment.

- Mirror requirements outlined in A.R.S. §11-829 (C). Amendment of ordinance or change of zoning district boundaries; definition.
- The information regarding the amendment and scheduled public hearing be posted on the Department of Development Services Internet web-site and county television Channel (77) at least fifteen (15) days prior to the meeting.
- Provide opportunities for official comment through implementing Media Support Program, CAG and Outreach components of the PI/PP.
- Distribute proposals to a variety of stakeholders, organizations and individuals listed on the Core Contacts and Contact Agencies lists for initial review and comment prior to the first public hearing.
- Place copies of the proposed amendments on display at the County Administration building, Department of Development Services, Library Branches and Web Page.

As these are not state requirements, the failure of the county or applicant to perform any of the following actions or failure of the property owner to receive said notice to will not invalidate the amendment process.

Planning and Zoning Commission Action - Following the first public hearing, Planning and Zoning Commission forwards a recommendation to the Board of Supervisors. The report will be in writing and include the recommendations for approval or disapproval and a brief summary of the reasons for said recommendations. The Land Use Element of the Yuma County 2020 Comprehensive Plan contains the differences between the Minor and Major Amendment processes.

Board of Supervisor Action - Upon receipt of the Commission's recommendation, the Board of Supervisors will hold a second public hearing. Notice of the time and place of the hearing will be provided in accordance with State law. Following the public hearing, the adoption or re-adoption of the Plan or any amendment will be by resolution. The adoption, re-adoption, or approval of a major amendment will require an affirmative vote of at least two-thirds (2/3) of the members of Board.

Adoption and Ratification of the Yuma County 2020 Comprehensive Plan
The adoption or re-adoption of the Plan or any amendment shall be by resolution of the Board. Statutorily:

- A.R.S §11-824. Adoption and amendment of county plan by board of supervisors; expiration and re-adoption A county comprehensive plan, with any amendments, is effective for up to ten years from the date the plan was initially adopted or until the plan is re-adopted or a new plan is adopted pursuant to this subsection and becomes effective. On or before the tenth anniversary of the plan's most recent adoption the board shall either readopt the existing plan for an additional term of up to ten years or shall adopt a new county plan as provided by this article.

Section Fourteen—Regional Coordination

Regional Coordination - Cooperative and productive interaction with agencies and organizations whose decisions and actions impact the health, safety and welfare of Yuma County residents.

14.1 Introduction

The purpose of the *Regional Coordination Element* is to outline strategies that strengthen county interaction among agencies and organizations. Yuma County's size, strategic location, dynamic regional economy, transportation network, agricultural land base and natural resource systems make coordination essential. These complex regional issues, trends and conditions extend beyond political boundaries.

Defining the county's role in the regional planning process is imperative. A regional perspective helps various agencies and organizations develop problem solving skills and new methods of cooperation to work together effectively. Establishing regional strategies to coordinate planning decisions and provide for the projected needs and stated goals of communities is fundamental to growth management.

Regional Coordination Basics:

- Determine the role of other organizations and political and administrative agencies in defining and promoting regional coordination.
- Address broad-based land use and transportation issues.
- Recognize the importance of maintaining a high level of interest and involvement by all agencies that have jurisdiction over a particular area in the county.
- Identify means to prioritize, evaluate and address regional issues and problems.

14.2 Regulatory Compliance

Growing Smarter Plus legislation provides general requirements for addressing issues of regional importance in comprehensive plans. State statutes mandate a regional approach when planning for the use of state trust lands, water resources, open space, recreational and environmental resources.

Arizona Revised Statutes, Title 11

Chapter 6 - County Planning and Zoning; Article 1:

> §11-806. Powers and duties; comprehensive plan D(2). Consult with, advise and provide an opportunity for official comment by public officials and agencies, municipalities, school districts, associations of governments, public land management agencies, other appropriate government jurisdictions, public utility companies, civic, educational, professional and other organizations, property owners and citizens generally to secure the maximum coordination of plans and to indicate properly located sites for all public purposes on the plan.

Chapter 6 - County Planning and Zoning; Article 2:

> §11-821. County plan; definitions
> F. The policies and strategies to be developed under these elements shall be designed to have regional applicability.

14.3 Promote Regional Coordination

Programs exist that promote the concept and benefits of regional coordination. However, it is necessary for the county to recognize the need to assess projects on a regional basis. As regional issues are defined, the fundamental components to assess projects are outlined as follows:

Regional Coordination Components:

- **Identification -** Identify all public agencies and organizations, internal and external to the county, whose plans have bearing on regional and future development or the health, safety and welfare of residents.

- **Communication -** Establish communications with all appropriate agencies and organizations. Communicate the intent of the Yuma County 2020 Comprehensive Plan and Regional Coordination Element.

- **Collaboration -** Recognize specific goals, objectives and policies of mutual interest. Emphasize regional issues with applicability to the various agencies and organizations. Develop consensus with other agencies and organizations relative to a course of action for involvement and accountability.

- **Meetings -** Conduct workshops and/or strategy meetings that allow interested agencies and organizations to convene and discuss regional issues, program goals, responsibilities and level of participation.

- **Implementation -** Determine the specific methods and strategies to support regional coordination. Assign responsibilities to the participating agencies and/or organizations for actual implementation and assessment.

14.4 The Regional Community

The county is comprised of many unique and isolated communities. However, because of continually changing socioeconomic factors, these communities need to share resources and become more integrated in order to sustain livability. Cooperation provides a forum to integrate common goals and establish a responsible regional community. The results of working collaboratively and sharing experiences to common regional challenges allow all concerned to benefit. The key participants and components of this regional coordination effort acting as a network of responsibility are shown in Figure 1 on page 3.

Figure 1 The Regional Community

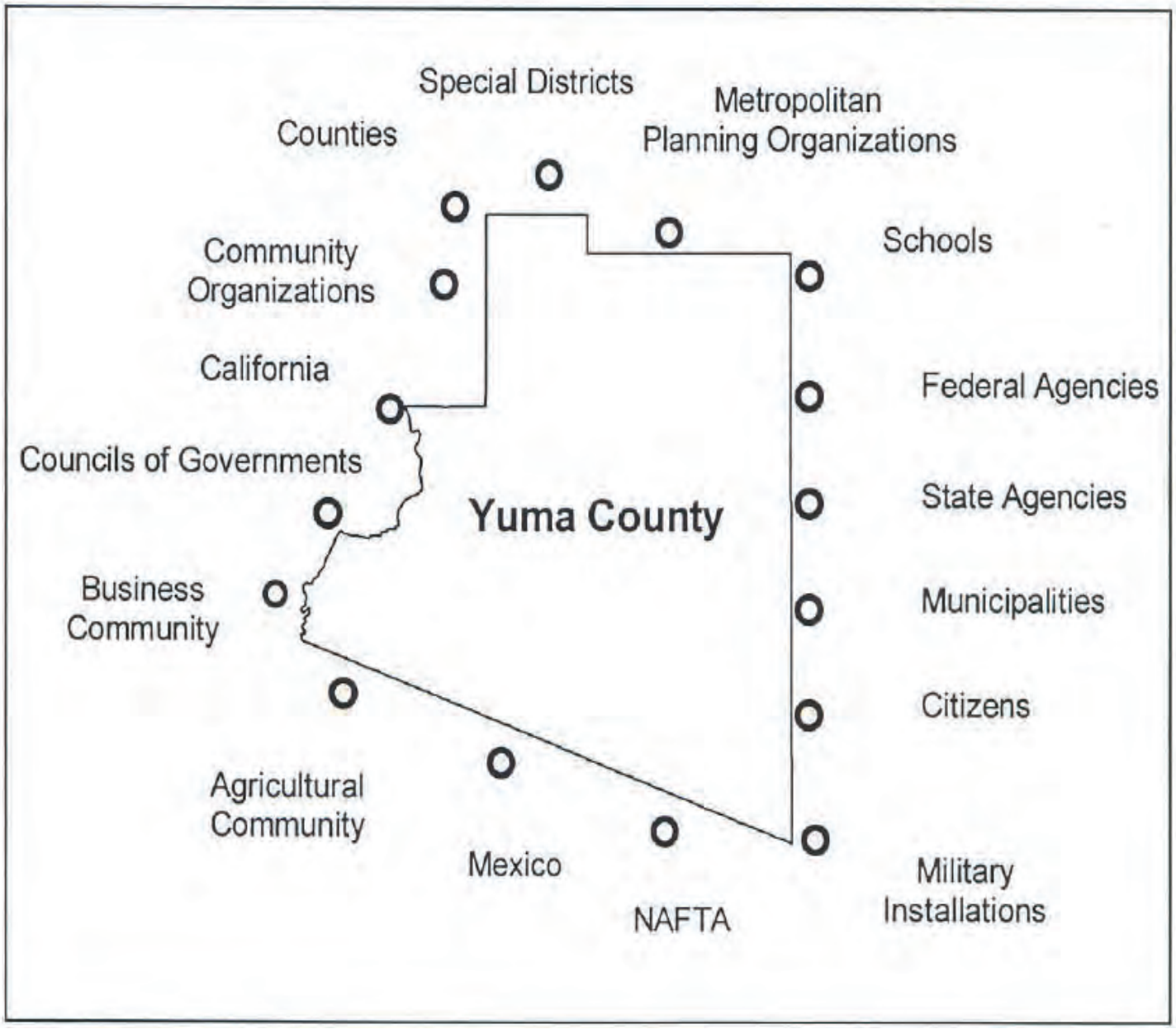


Figure 1 The Regional Community

14.5 Yuma Regional Development Plan

Policies to Achieve a Multi-Jurisdictional Vision for 2020

The Yuma Regional Development Plan (YRDP) represents the combined efforts of the Cities of San Luis, Somerton, Yuma, the Town of Wellton, Yuma County, Marine Corps Air Station (MCAS), and the U.S. Army Yuma Proving Ground (YPG) to achieve the following:

- A common set of land use development policies for the future economic growth and development of lands within the incorporated and unincorporated areas in Yuma County.
- A foundation for the compatibility of land use activities in the vicinity of the following military facilities and ancillary airfields: Marine Corps Air Station–Yuma/Yuma International Airport (MCAS/YIA), the Barry M. Goldwater Range (BMGR), and U.S. Army Yuma Proving Ground (YPG).
- A means to promote and preserve the primary economic assets of the area: Agriculture, Military and Tourism.

These entities have committed to work together to achieve the YRDP objectives as the Yuma Regional Development Group.

The YRDP is built on the previous planning efforts of the area agencies, including the Yuma County Comprehensive Plan, the General Plans for Somerton, San Luis, Wellton and Yuma, the City/County Joint Land Use Plan, and the Joint Land Use Study for the Barry M. Goldwater Range.

The YRDP is comprised of a set of goals and objectives to guide elected officials, commissions, boards and staff in their discussions and deliberations on development opportunities and zoning actions. The goals and objectives identify various types of land use activities (e.g., residential, commercial, industrial) and the corresponding general regional development philosophies that preserve the agriculture, military, and tourism industries.

This planning document focuses on six overall policies:

- Coordinated and Compatible Planning
- Concentrated Urban Development
- Military and General Aviation Preservation
- Valley Agricultural Protection
- Industrial and Commercial Development
- Rural Development and Lifestyle Preservation

The incorporated jurisdictions and Yuma County desire to pursue the mutual objectives and goals of the YRDP, committing their resources toward the furthering of their adopted General and Comprehensive Plan goals and objectives. Continued cooperation between the jurisdictions will provide the best opportunities to achieve common long-term results.

The participating entities may use different methods and processes to accomplish the objectives, but the overall purpose of the Plan is to have a common means of reaching the shared development visions and objectives represented.

Coordinated and Compatible Planning

Goal: The incorporated communities of San Luis, Somerton, Wellton and Yuma and the unincorporated areas of Yuma County have common land use development policies for future economic growth and development.

Objectives. Each Jurisdiction will:

- Recognize the shared boundaries of the General and Comprehensive Plans of the respective cities, towns and county and the Joint Land Use Study of the BMGR.
- Ensure compatible land uses between adjacent entities and along military boundaries.
- Provide notification to all cities, towns and counties, and military installations regarding annexations, plan amendments, rezonings and subdivisions.
- Participate in joint meetings among the entities for the coordination of relevant development issues.
- Continue to adopt similar and comparable building codes.
- Coordinate with other local, state, and federal agencies with natural resource management responsibilities.

Concentrated Urban Development

Goal: Urban development is concentrated within areas currently provided or planned to receive all of the following urban services:

- Water and wastewater distribution systems
- Surface transportation and circulation systems
- Schools, parks/open space, and recreation facilities
- Fire and police protection and refuse collection services

Objectives

- Promote the most efficient use of land and reduce the cost of infrastructure, encourage urban development that utilizes in-fill parcels or land that is currently served by water, sewer and improved roadways.
- Consider a variety of regulatory, incentive and program strategies to encourage smart growth development, including amending land use codes.
- Promote urban development that is served by roads, water, sanitary sewer and storm drainage, schools and other urban services.
- Promote urban development that includes sustainable development that takes advantage of energy-saving technologies and construction alternatives.
- Concentrate urban facilities and services within existing urbanized areas to make it a desirable place to live and work, to increase the opportunities for walking and biking within the community, to more efficiently use existing infrastructure capacity and to reduce the long-term costs of infrastructure maintenance.

- Promote development standards for urban areas that emphasize ways to allow maximum permitted densities and uses of urban land.
- Encourage the municipalities and the county to work with neighborhood groups, local business organizations, public service providers and other stakeholders on annexation-related activities to best meet the needs of area residents and land owners.
- Promote local commercial development in unincorporated urban areas to serve the needs of the surrounding population
- Encourage new urban development to locate in areas where services and public facilities exist or can easily be extended thereby resulting in cost effective development and reduced utility costs.
- Encourage urban development that utilizes the following principles:

  - Utilizing a mix of land uses
  - Taking advantage of compact building design
  - Creating a range of housing opportunities and choices
  - Creating walkable neighborhoods
  - Fostering distinctive, attractive communities with a strong sense of place
  - Preserving open space, natural beauty, and critical environmental areas
  - Protect valley farmland from encroachment
  - Strengthening and directing development towards existing communities
  - Providing a variety of transportation choices
  - Making development decisions predictable, fair, and cost effective
  - Encouraging community and stakeholder collaboration in development decisions

Military and General Aviation Preservation

Goal: Compatible land use activities are maintained and promoted in the vicinity of the region's military and general aviation facilities.

Objectives

- Develop and maintain a land use pattern that protects installation operations and minimizes incompatible development in the vicinity of the Marine Corps Air Station-Yuma, Yuma Proving Ground, Barry M. Goldwater Range, and ancillary facilities.
- Promote compatible land use activities in the vicinity of General Aviation facilities of Yuma County including Yuma International Airport, Rolle Airfield, Somerton Airport, and other general aviation facilities developed in the future.
- Recognize the goals and objectives of the master plans for each military and general aviation installation in order to promote preservation and discourage encroachment.
- Encourage compatible redevelopment of conflicting land uses in the vicinity of military and general aviation facilities and ranges.
- Prevent future land use compatibility issues that negatively impact the military or encroach upon the facilities and the ranges.
- Identify potential aviation assets (private airfields) within each entity's respective planning documents.
- Require that applicable military disclosure statements are recorded against properties.

Agriculture Protection

Goal: Land uses, policies and implementation measures support and protect agriculture.

Objectives

- Identify the valley agricultural lands in Yuma County.
- Develop an urban pattern that minimizes encroachment on the valley agricultural lands in Yuma County.
- Establish buffer or transition areas consisting of appropriate land uses between agricultural and urban areas.
- Develop policies to address potential conflicts between residential neighborhoods that adjoin agricultural operations through:
    - Use of design (neighborhood layout, retention basins and/or walls, buffers and landscaping) to minimize conflicts.
    - Disclosure statements recorded against individual properties.
    - Encourage school districts to locate future school sites that do not create conflicts with agricultural operations.
    - Recognize agricultural lands and related food safety issues..

Commercial and Industrial Development

Goal: Commercial and Industrial Development locations are promoted through land use plans, policies and implementation measures.

Objectives

- Propose commercial nodes or centers to minimize congestion along major highways and roads.
- Explore opportunities to incorporate existing strip developments with commercial nodes.
- Encourage the growth and significance of the industrial component of the economy that provides stable, year-round employment through the establishment of individual city or county incentive programs for those industries that demonstrate sustained employment.
- Promote “mixed use” areas between commercial and residential land uses.
- Locate industrial uses in areas where municipal services exist or are planned to be constructed within an approved capital improvement plan and which have convenient access to major transportation systems, such as airports, railway lines, commercial ports of entry, and highways.
- Locate business and industrial activities along major road corridors to act as a buffer for lower intensity land uses.
- Promote the development, reuse, redevelopment, and infill of commercial nodes through incentive programs.
- Promote compatible industrial development within the vicinity of military facilities.
- Support international trade and logistics opportunities in Yuma County.
- Support the development of general aviation and freight services at Rolle Field that are compatible with MCAS operations.

Rural Development and Lifestyle Preservation

Goal: Rural development occurs in areas with lower levels of infrastructure and public services.

Objectives

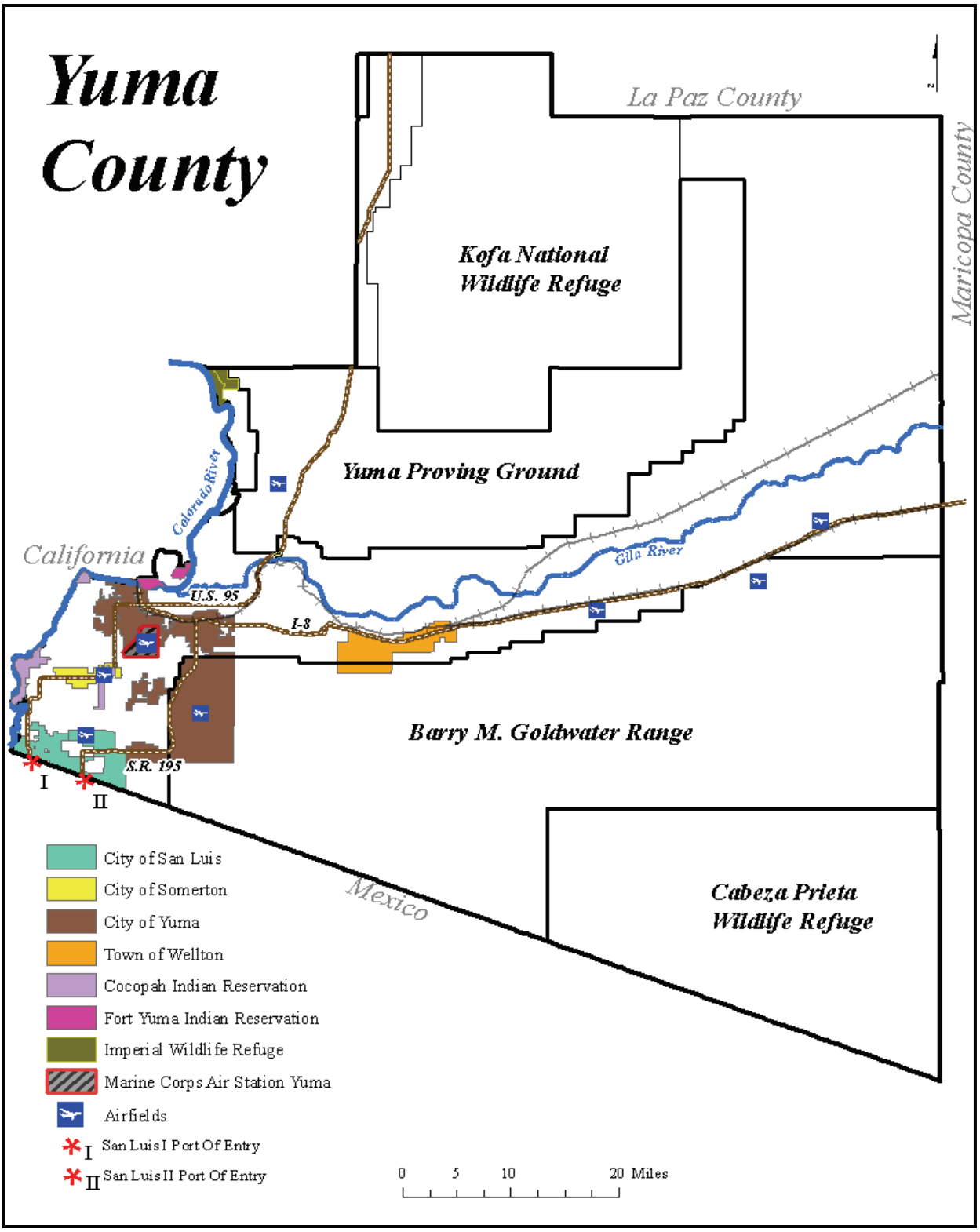
- Rural and semi-rural lifestyles are accommodated through rural density development on lands having lower agricultural productivity than valley agricultural lands.
- Rural residential development is supportable in areas where non-urban densities are planned and urban infrastructure is not planned.
- Industrial development in rural areas shall include the provision of public infrastructure and services.
- Rural development in the vicinity of the military installations will be compatible with operations.
- Promote the implementation of wildlife-friendly planning where appropriate to help conserve local fish and wildlife populations, habitats, and associated recreational opportunities.
- Preserve open space, valley farmland, natural beauty, and critical environment areas.
- Support renewable energy and other industrial developments that are located and designed to minimize the impact to wildlife populations, their habitats, and associated recreation opportunities.

Tourism

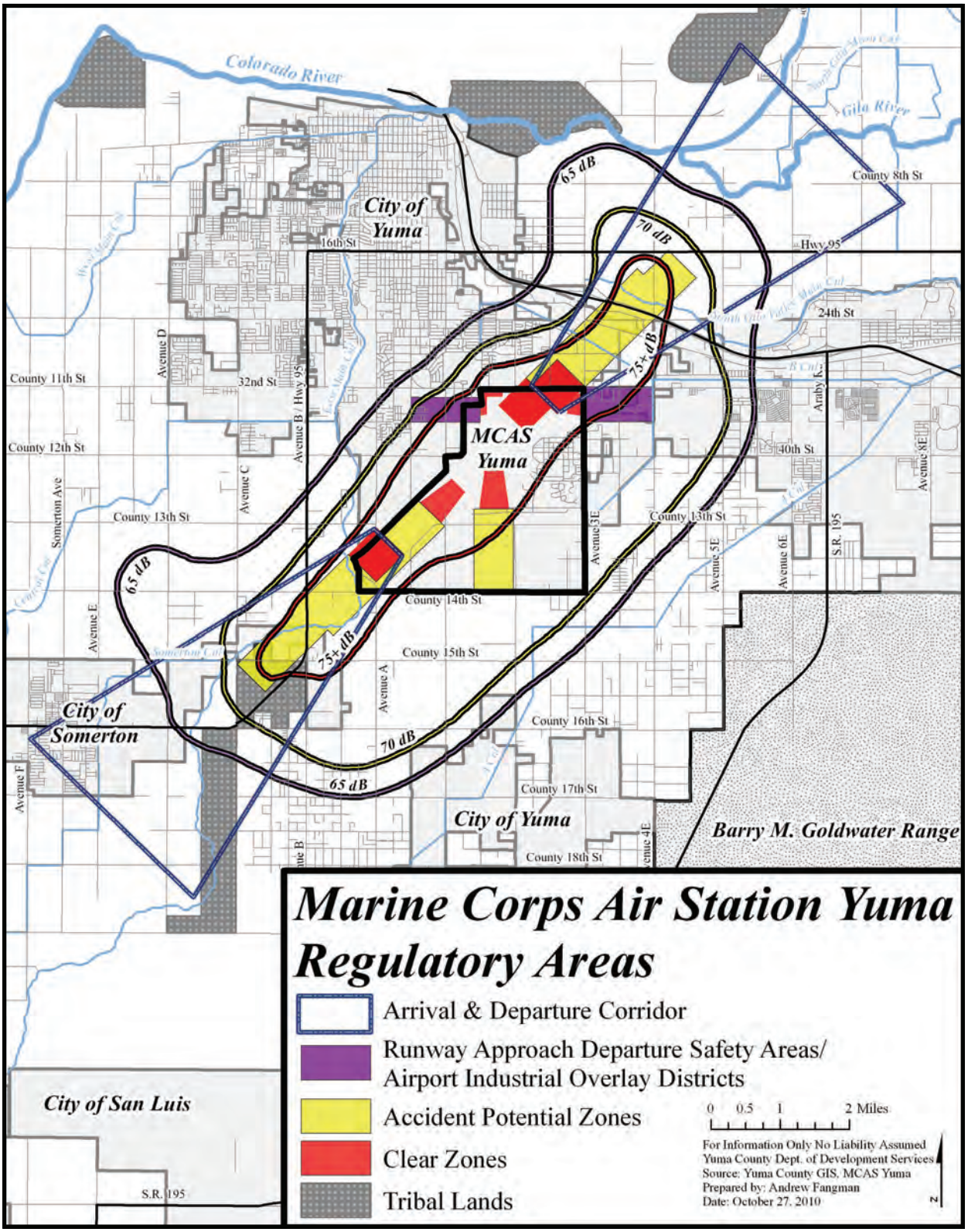
***Goal**:* Regional tourism activities are expanded and the relationships among agriculture, tourism, the economy, and natural resources are supported.

Objectives

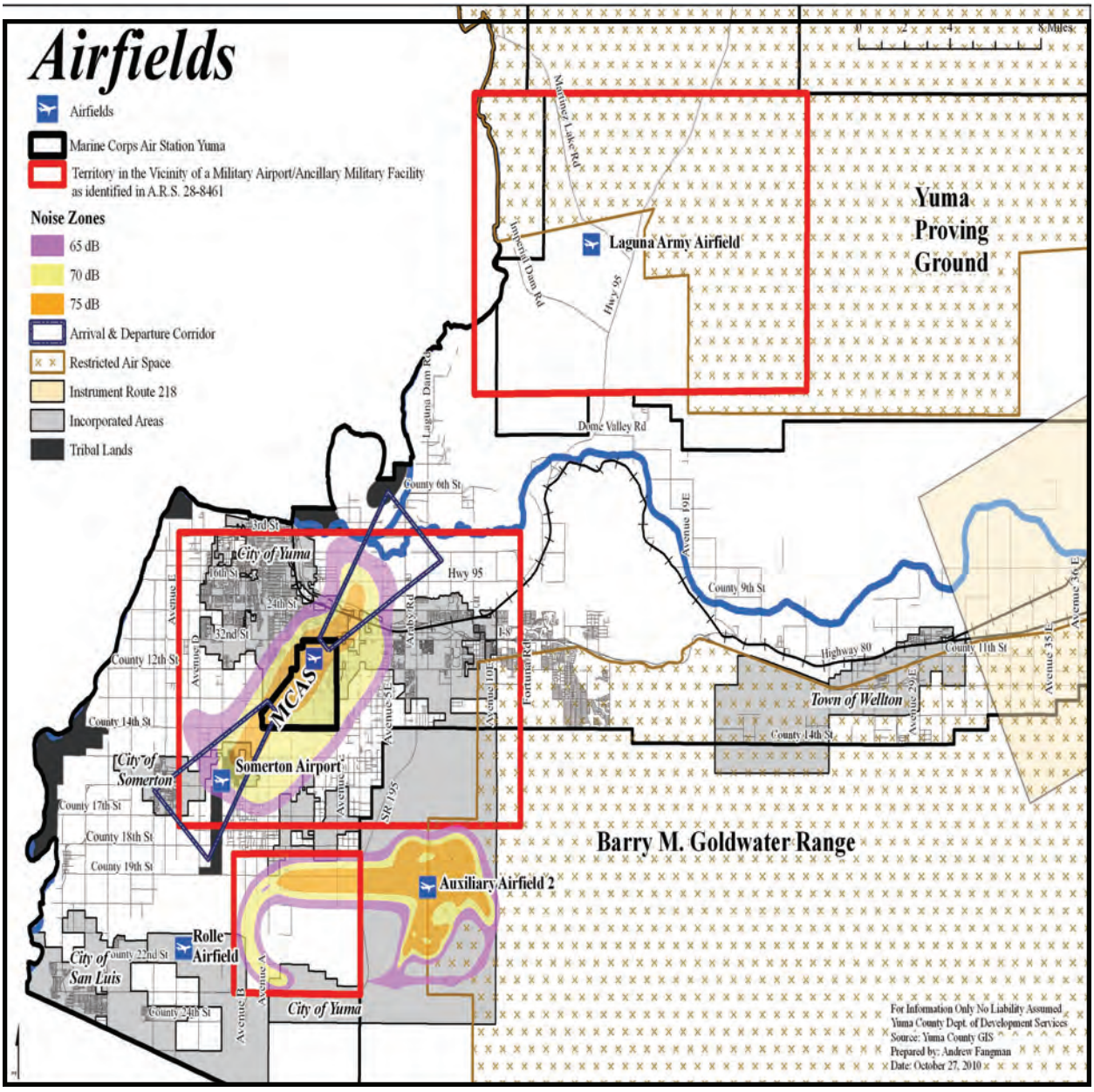
- Promote public and commercial recreational opportunities along and on the Colorado River.
- Promote agricultural tourism opportunities that are compatible with agricultural operations.
- Preserve open spaces and areas where outdoor recreational activities occur.
- Develop connectivity of regional parks and open spaces where practical.
- Support grant applications that seek to improve regional parks or open spaces.
- Ensure that camping/recreational vehicle parks are developed with appropriate infrastructure improvements.
- Promote various special events and festivals that encourage unique interests and tourism opportunities.
- Recognize and support fish and wildlife populations and habitats and associated angling, hunting, and wildlife-watching recreation opportunities.



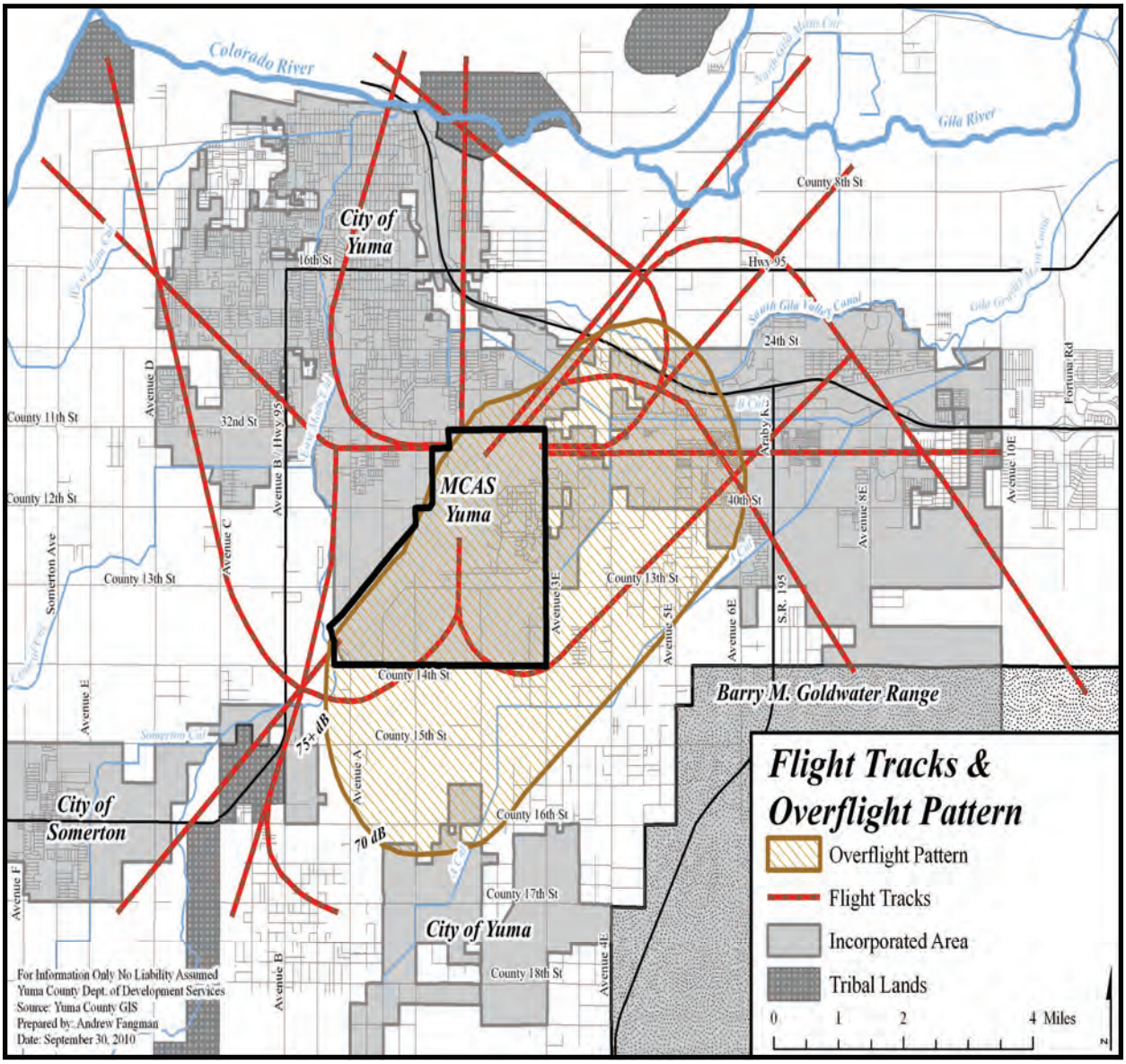
Map 1: Yuma Regional Development Plan



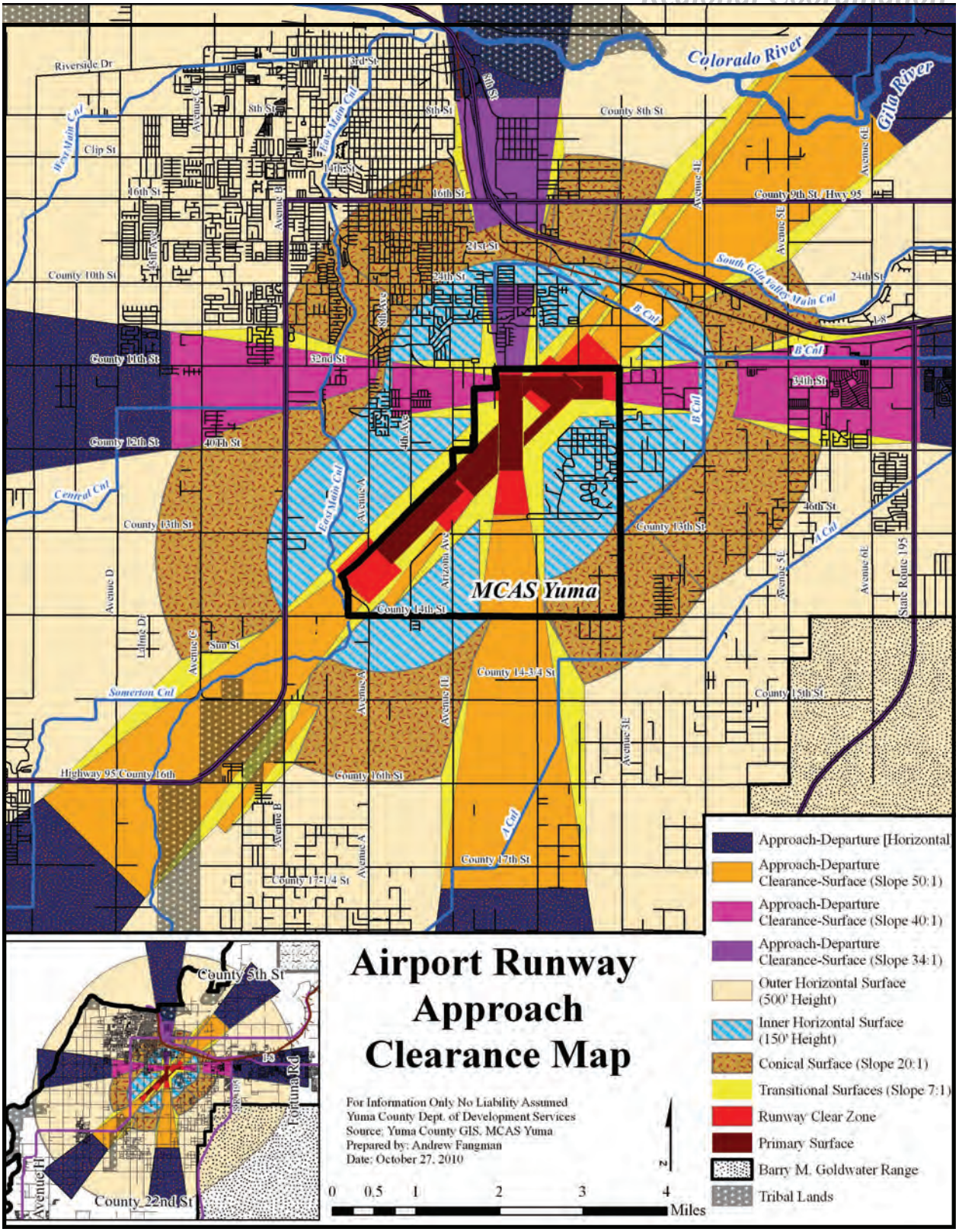
Map 2: Marine Corps Air Station-Yuma Regulatory Areas



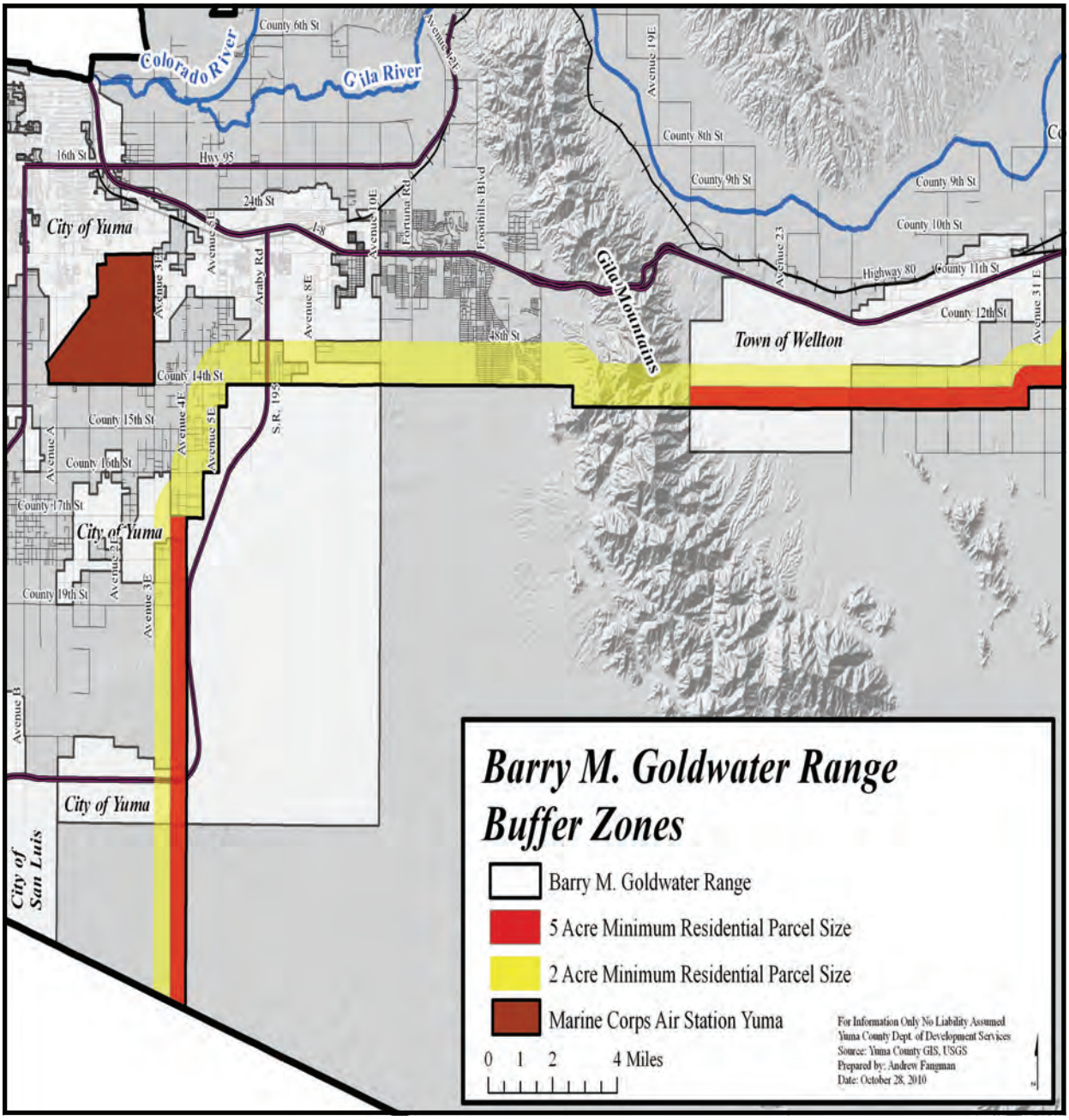
Map 3: Airfields



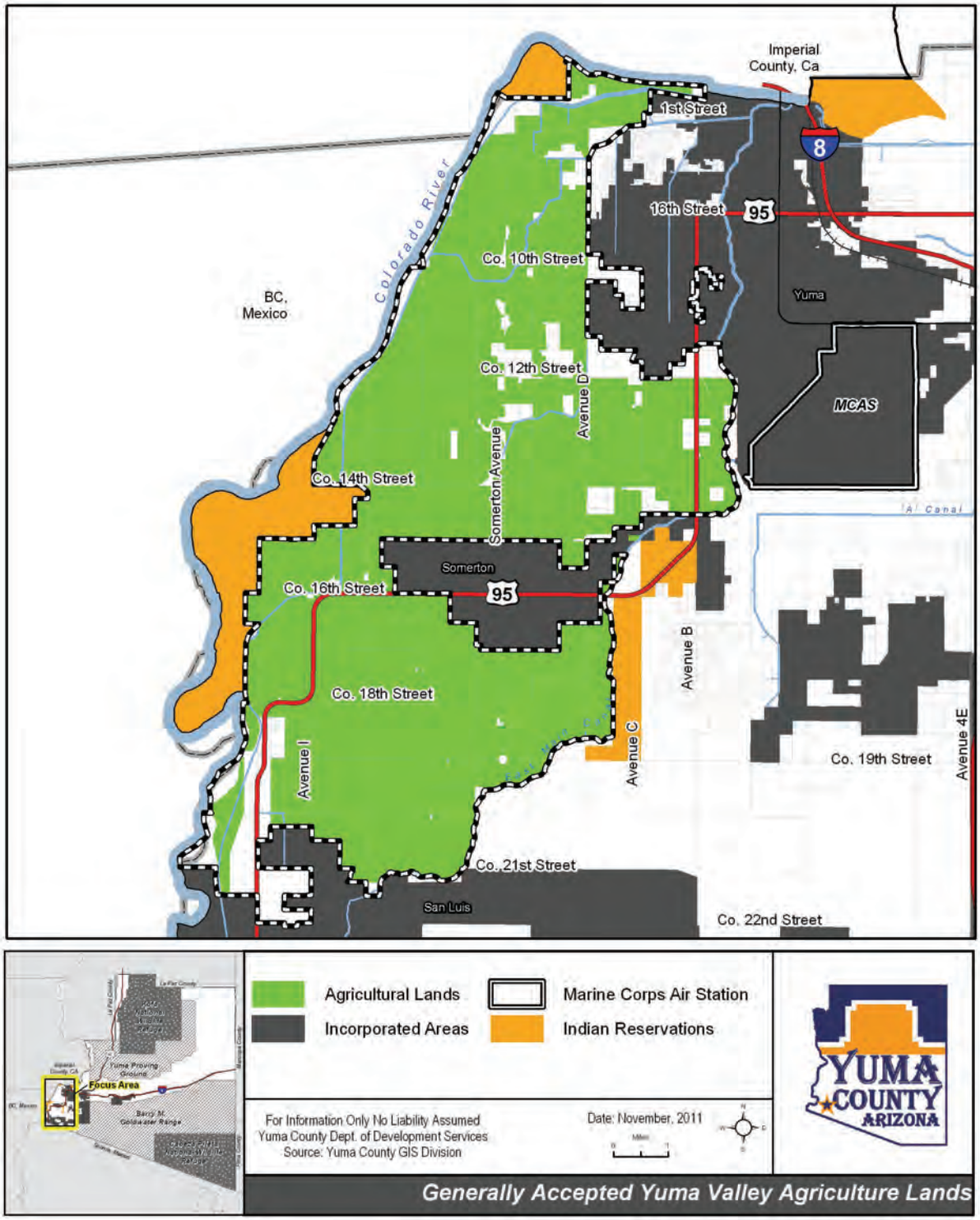
Map 4: Flight Tracks & Overflight Pattern



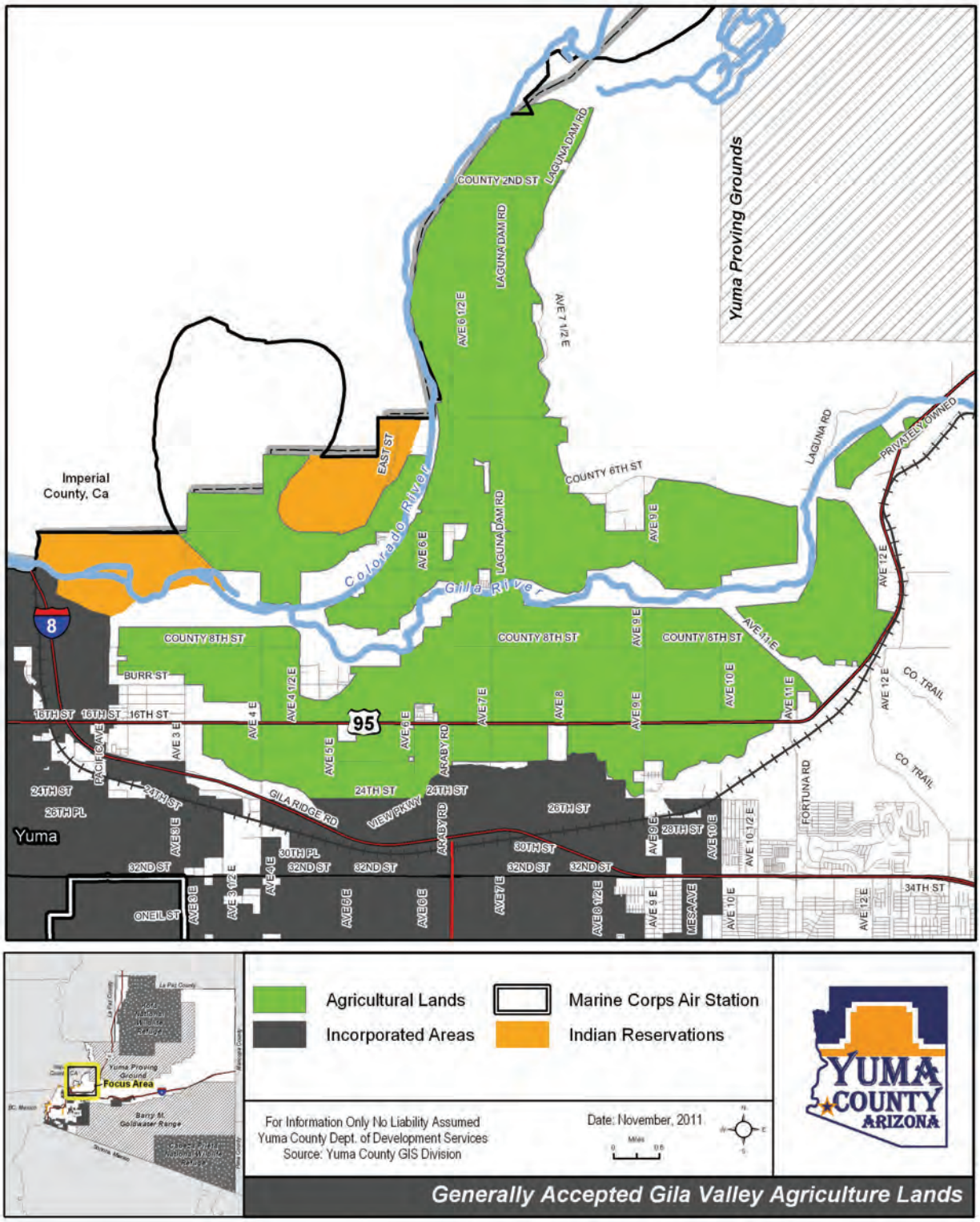
Map 5: Airport Runway Approach Clearance Map



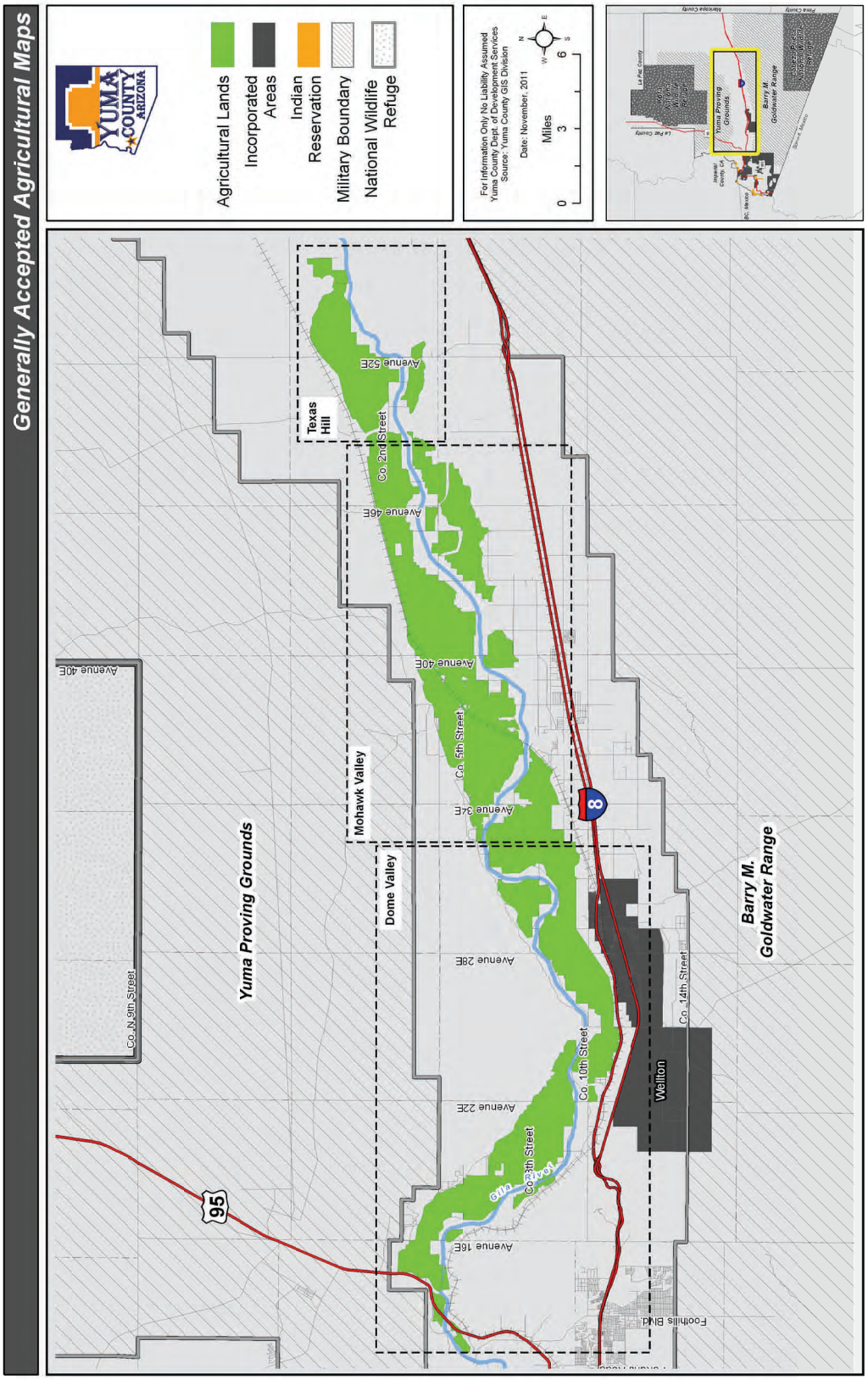
Map 6: Barry M. Goldwater Range Buffer Zones



Map 7: Yuma Valley Agriculture Lands



Map 8: Gila Valley Agricultural Lands



Map 9: Dome Valley and Mohawk Valley Agricultural Land

APPENDIX

15.1 Development Evaluation Checklist

The Development Evaluation Checklist is a tool to determine the impact of a development project on land use, environmental, social and welfare conditions. The checklist is adopted from the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations and tailored toward the county. It will assist in case report analysis for rezoning and special use permit applications. It will also comply with legal requirements of *Growing Smarter Plus*.

The checklist identifies important resources to consider when reviewing a development proposal. Supporting documentation should provide background information on the level of impact anticipated to these resources.

The checklist categorizes the following Impact Categories:

- Conformance to Existing Plan
- Land Use Compatibility
- Natural Resources
- Public Infrastructure
- Natural Environmental Conditions
- Manmade Environmental Conditions
- Health, Safety and Welfare

Development Evaluation Checklist

Case No.: Owner/Agent:

Current Zoning: Proposed Zoning: Acreage:

	IMPACT CATEGORY I. CONFORMANCE TO EXISTING PLANS	YES	NO	SCORE
1	The proposal is consistent with the Yuma County 2010 Comprehensive Plan, Joint Land Use Plan (JLUP), area plans, and other applicable county, state, or regional plans.	25	0	
2	The proposed project reduces open space or rural preservation areas identified in the Yuma County 2010 Comprehensive Plan.	0	10	
3	The proposed use is consistent and compatible with overlay zoning districts applicable to the subject parcel such as the Airport District, Gila Mountain, or Visual Corridor overlay zones.	10	0	
	IMPACT CATEGORY II. LAND USE COMPATIBILITY			
4	The proposed use is the same or similar to the uses in the surrounding vicinity.	25	0	
5	The proposed density is the same or similar to the existing density in the surrounding vicinity.	25	0	
6	The location of the project is appropriate considering proximity to existing transportation, shopping, services and employment.	25	0	
	IMPACT CATEGORY III. NATURAL RESOURCES			
7	The project, or a part of the project is located within the 100-year floodplain or floodway.	0	10	
8	The subject parcel is located in an area of known high groundwater or a surface water source is present	0	5	
9	The project will result in the loss of prime and/or unique farmland.	0	15	
	IMPACT CATEGORY IV. PUBLIC INFRASTRUCTURE			
10	Adequate improvements to the existing transportation system are proposed (i.e., intersection improvements, road widening, turn lanes, etc.) to accommodate the anticipated increase in traffic, or the development will not result in an increase in traffic.	15	0	

		YES	NO	SCORE
11	Any public right-of-way necessary to accommodate the development has been or is proposed to be dedicated.	5	0	
12	A traffic impact study is either not required, or if required has been completed indicating the conclusions and recommendations for improvements.	5	0	
13	A public or private water system, or an on-site water source, will adequately serve the proposed development	5	0	

IMPACT CATEGORY V.
NATURAL ENVIRONMENTAL CONDITIONS

14	The project site contains endangered or threatened animal or plant species, or contains ecologically sensitive land.	0	5	
15	The project site contains earthquake fault lines, fissures, cracks, sinkholes, craters, or is within an earthquake liquefaction area.	0	5	
16	Soils within the project area are stable and suitable for the proposed development.	5	0	
17	There are visual indications of previous slides, slumps or other soil problems (cracked walls and foundations, tilted trees or fences, settling, flooding, etc.) in the project area.	0	5	
18	The site contains slopes of 12% or greater.	0	5	

IMPACT CATEGORY VI.
MANMADE ENVIRONMENTAL CONDITIONS

19	The site contains fossils, artifacts, relics, monuments, or structures of archaeological or cultural significance.	0	5	
20	Given the existing noise and estimated future noise levels of the area, the site is appropriate for the proposed activities and facilities.	5	0	
21	The project will increase PM_{10} (particulate matter 10 microns or less diameter) or other air pollution levels in the vicinity.	0	5	
22	The proposed project will release emissions such as nitrates, sulfates, or organic carbons into the air, which may reasonable be anticipated to causes or contribute to regional haze or impairment of visibility.	0	15	

IMPACT CATEGORY VII.
HEALTH, SAFETY, AND WELFARE

23	Physical access to the site is traversable by a two-wheel drive passenger motor vehicle.	15	0	
24	Access to or within the site is via a non-paved surface (which increases the amount of particulates such as soot or dust in the air).	0	10	
25	Response time for emergency vehicles (Rural/Metro ambulance and fire) is 6 minutes or less, and 10 minutes or less for law enforcement (Sheriff's Dept.).	10	0	

		YES	NO	SCORE
26	A legal public right of vehicular ingress and egress exists to and from the parcel.	10	0	
27	The proposed land use is an allowed use according to the Yuma County Zoning Ordinance Airport District Land Use Matrix.	10	0	
28	Elementary, middle, and high schools serving the subject property will be able to accommodate any projected enrollment increases within existing capacities.	10	0	
			TOTAL SCORE	
			MAXIMUM POSSIBLE SCORE	

HIGH SCORE

Total score is 275 to 300.

A score falling in this category represents a proposal that likely should be **approved**.

The proposal is likely to be in compliance with adopted land use plans, policies, and objectives, has good access, and is compatible with surrounding development.

MODERATE SCORE

Total score is 250 to 274.

A score falling in this category represents a proposal that likely contains some redeeming qualities but is lacking in one or more areas.

Proposals within this score range typically should be more carefully considered.

LOW SCORE

Total score is 249 or less

A score falling in this category represents a proposal that likely should be **denied.**

The proposal likely does not comply with several adopted land use policies, goals, or objectives, may not have physical or legal access, or may not be compatible with surrounding development.

Prepared by: _____ Date: _____

15.2 Core Contact List

Name	Company	Phone
Sherril Lee	Arizona Department of Commerce	602-771-1100
Susan Craig	Arizona Department of Water Resources	602-771-8603
Tom Horne	Arizona State Attorney General	602-542-5025
Gordon Taylor	AZ State Land Dept.	
Megan Reid	Arizona Historical Society	928-782-1841 (W) 928-782-0680 (F)
Bruce Fenske Gerry Ramirez Isabell Garcia Michael Jones Alvin Stump	Arizona Department Of Transportation (ADOT)	928-317-2100 (W) 928-317-2107 (F)
Pike Smith Scott Kerns Andrea Bereznak	Arizona Public Service (APS)	928-336-9843
Bill Knowles	AZ Game & Fish Dept.	928-342-0091(W)
Robert Pickels	Yuma County Administrator/Clerk of the Board (BOS)	928-373-1010
Arturo Lopez Mirella Zahn	Bureau of Land Management (BLM)	928-317-3200 (W) 928-371-3250 (F)
Ken Rosevear	Chamber of Commerce	928-782-2567
Josie Camacho	Chicanos Por La Causa	928-343-9825
Bill Lee	City of Somerton	928-627-8866
Carmen Juarez	City of Somerton	928-627-8866
Ralph Velez	City of San Luis	928-341-85-20
Sharon Williams	City of San Luis Planning	928-341-8520
Laurie Lineberry	City of Yuma	928-373-5175
Paul Soto	Cocopah Indian Tribe	928-627-2102
Maria Hernandez	Comite de Bienestar	928-627-8559 ext. 13
Tom Tyree	County School Superintendent	928-363-1006
Gary McCauley	El Paso Natural Gas	928-345-1606
Jack McArthur	City of Yuma Fire Battalion Chief	928-373-4850
Iris Collard	Foothills Library	928-342-1640
	Foothills Bicycle Club	
Bill Broyels	Friends of Cabeza Prieta	520-292-1487

Core Contact List (continued)

Name	Company	Phone
Julie Engel	Greater Yuma Economic Development Council	928-782-7774
Armando Villa	Imperial County Planning	760-482-4236
Kevin Kelley	Imperial Irrigation District	760-339-9477 (W) 760-339-9417 (F)
Scott Bernhart	La Paz County Planning	520-669-6115
Joy Rich c/o Suzanne Gray	Maricopa County Planning	602-506-33-1
Sandra Hogarth	Martinez Lake Home Owners Assoc.	329-4807
Hank Atha	Pima County Planning	520-740-8401
Jerry Geier	City of Yuma Police Chief	928-373-4656
Keeny Escalanti, Sr.	Quechan Indian Tribe	760-572-0213
Doug Bowman	Qwest	928-783-5879
Sandy Bahr	Sierra Club – Grand Canyon Chapter	602-253-8633
Jim Adler	Society of Military Eng.	928-726-8453
Rick Rohrick	Southwest Gas	928-341-2610 (W)
Bobby Guttierez Javier Mendez	Time Warner Cable	928-783-4441 or 928-782-9853
Scott Rust Shelly Ward Steve Smarik	United States Department of Agriculture (USDA)	928-341-1680
Michael L. Martin	United States Postal Service (USPS)	928-343-9416
Paula Backs	United States Marine Corps Air Station (US MCAS)	928-269-2272
Jo Penunuri	Western Area Power Administration	602-605-2525
Charlene Fitzgerald	Yuma Metropolitan Planning Organization (YMPO)	928-783-8911
Paul Patane	Yuma Metropolitan Planning Organization (YMPO)	928-783-8911
Ken Motta	Yuma Association. Of Realtors	928-782-1628
William Beck	Yuma County Public Works	928-341-2500
Roger Patterson	Yuma County Engineer	928-817-5000
Monty Stansbury	Yuma County Development Services	928-817-5000
Craig Sellers	Yuma County Flood Control District	928-817-5000
Kevin Tunnell	Yuma County Public Affairs	928-329-2154
Paul Melcher	Yuma County Planning Director	928-817-5000
Maggie Castro	Yuma County Planning	928-817-5000
Edward Feheley	Yuma County Legal Counsel	928-817-4300

Core Contact List (continued)

Name	Company	Phone
Melissa Flores	Yuma Southwest Contractors Association	928-539-9035
Omar Penunuri	Yuma County Water Users Association (YCWUA)	928-627-8824 (W) 928-627-3075(F)
Tom Davis	Yuma County Water Users Association (YCWUA)	928-627-8824 (W) 928-627-3075(F)
Rex Green	Yuma Irrigation District	928-726-1047 (W)
Star Thieme	Yuma Mesa Irrigation District (YMID)	928-726-4353 (W)
Wade Noble	Yuma Mesa Irrigation District (YMID)	928-726-4353 (W)
Robert Klee	Antelope High School District	928-785-3344
Dale Ponder	Crane School District	928-373-3400
Mike Wicks	Crane School District	928-373-3400
Cindi Didway	Crane School District	928-373-4000
Ray Aguilera	Gadsden School District	928-627-2910
John Koury	Hyder Elementary School District #16	928-454-2242 (W) 928-454-2217 (F)
Christopher Mayners	Sentinel Elementary School	928-454-2474
Frances Murrietta	Somerton Library	928-627-2149
Jay Simonton	City of Yuma Utilities Director	928-373-4500
Rodney Rinehart	Town of Wellton	928-785-3348
George Fischback	US Army Yuma Proving Grounds	928-328-2933
Renee Ramos	US Customs and Border Patrol	928-341-6500
Amanda Aguirre	Western Arizona Area Health Education Center	928-726-8270
Elston Grubaugh	Wellton Mohawk Irrigation District	928-785-3351
Laura L. Noel	Wellton School District	928-785-3311
Carol Frinfrock	Wellton Library	928-785-9575
Steve Duran	Yuma Main Library	928-782-1871
Liz Foster	Yuma County Farm Bureau	928-782-5338
Darwin Stiffler	Yuma School District 1	928-502-4303 (W)
Dave Hylland	Yuma Union High School District (YUHSD)	928-502-4600
Toni Badone	YUHSD Superintendent	928-726-1731 (W)
Gen Grosse	Yuma County Airport Authority	928-726-5882
Doug Beach	Yuma Valley Rod and Gun Club	928-581-2327

LAND USE CONFORMITY MATRIX

Yuma County 2020 Comprehensive Plan	Yuma County Zoning Designations																						
Land Use Designations & Abbreviation	RA-40	RA-20	RA-10	RA-5	SR-4	SR-3	SR-2	SR-1	SSB-20	SSB-10	SSB-5	SSB-4	SSB-3	SSB-2	SSB-1	R-1-40	R-1-20	R-1-15	R-1-12	R-1-8	R-1-6	R-2	R-3
Agriculture / Rural Preservation (40 acre parcels) - (A- RP)	X																						
Agriculture / Rural Residential (10 acre parcels) - (A- RR)	X	X	X						X	X													
Agriculture / Rural Development (5 acre parcels) - (A- RD)	X	X	X	X					X	X	X												
Rural Density Residential (1 du/2 ac to 1 du/10 ac) - (R- RD)			X	X	X	X	X			X	X	X	X	X									
Ranchette Residential (1 du/1 ac to 1 du/5 ac) (min. 1 acre parcels) - (R-R)				X	X	X	X	X			X	X	X	X	X								
Estate Density Residential (2 du/1 ac to 1 du/5 ac)(min. 1/2 acre parcels) - (R-ED)				X	X	X	X	X			X	X	X	X	X	X	X	X					
Suburban Density Residential (3 du/ac to 1 du/2 ac) (min 1/3 acres parcels) - (R- SD)							X	X						X	X	X	X	X	X				
Low Density Residential (1-6 du/ac) - (R- LD)								X							X	X	X	X	X	X	X		
Medium Density Residential (4-12 du/ac) - (R- MD)																				X	X	X	
Urban Density Residential (10-18 du/ac) - (R-UD)																						X	X
Mixed Use Residential (1 acre maximum parcels) - (R- MU)																X	X	X	X	X	X	X	X
Retirement Community / Planned Unit Development - (R- RC)/(PUD)																				X	X	X	X
Agriculture/Industrial (A-I)	X	X	X	X																			
Industrial (I)																							
Business Park (BP)																							
Local Commercial (C-LC)																							
Regional Commercial (C-RC)																							
Open Space & Recreational Resources (OS/RR)	X	X																					
Sensitive Areas & Resource Lands (SA/RL)	X	X																					
Transportation, Communications & Utilities - (TCU)	X	X																					
Public/Quasi Public (P-QP)	X	X	X	X																			

Yuma County 2020 Comprehensive Plan	Yuma County Zoning Designations																						
Land Use Designations & Abbreviation	MHS-20	MHS-15	MHS-12	MHS-10	MHS-8	MHS-6	MHS-4.5	MHP	RVS	RVP	RC	C-1	C-2	LI (All)	HI (All)	II	PD	OS/RR	TCU	SA/RL	PF	VCO	AD
Agriculture / Rural Preservation (40 acre parcels) - (A- RP)																						X	X
Agriculture / Rural Residential (10 acre parcels) - (A- RR)																						X	X
Agriculture / Rural Development (5 acre parcels) - (A- RD)																			X		X	X	X
Rural Density Residential (1 du/2 ac to 1 du/10 ac) - (R- RD)																	X					X	X
Ranchette Residential (1 du/1 ac to 1 du/5 ac) (min. 1 acre parcels) - (R-R)																	X					X	X
Estate Density Residential (2 du/1 ac to 1 du/5 ac)(min. 1/2 acre parcels) - (R-ED)	X	X															X					X	X
Suburban Density Residential (3 du/ac to 1 du/2 ac) (min 1/3 acres parcels) - (R- SD)	X	X															X					X	X
Low Density Residential (1-6 du/ac) - (R- LD)	X	X	X	X	X	X											X					X	X
Medium Density Residential (4-12 du/ac) - (R- MD)							X		X								X					X	X
Urban Density Residential (10-18 du/ac) - (R-UD)								X	X								X					X	X
Mixed Use Residential (1 acre maximum parcels) - (R- MU)	X			X	X	X	X	X	X	X	X	X					X					X	X
Retirement Community / Planned Unit Development - (R- RC)/(PUD)				X	X	X	X	X	X	X	X	X					X					X	X
Agriculture/Industrial (A-I)														X	X		X		X			X	X
Industrial (I)														X	X	X	X					X	X
Business Park (BP)												X	X	X			X					X	X
Local Commercial (C-LC)								X		X	X	X					X					X	X
Regional Commercial (C-RC)								X		X	X	X	X				X					X	X
Open Space & Recreational Resources (OS/RR)																	X	X				X	X
Sensitive Areas & Resource Lands (SA/RL)																	X			X		X	X
Transportation, Communications & Utilities - (TCU)												X	X	X	X	X	X		X			X	X
Public/Quasi Public (P-QP)												X	X	X	X	X	X		X		X	X	X

Disclaimer: This matrix is to be used as a guideline in conjunction with the policies and priorities in this Plan to determine conformity with the Yuma County Zoning Ordinance

15.4 Glossary

Action **-** A statement prescribing a specific course of action to implement stated policies and priorities.

Adequate Public Facilities (APF**) -** Facilities and services (including water and sewer systems, fire protection, sheriff sub-stations, schools and roads) that are available and have the capacity to serve new development without reducing levels of service below established minimum standards.

Amendment **-** A formal revision, addition or suggested change made to an existing plan or statute (see ***Minor*** and ***Major Amendment***).

Annexation **-** The incorporation of a land area into an existing community with a resulting change in the boundaries of that community.

Aquifer **-** A geologic unit that contains sufficient saturated permeable material to yield usable quantities of water to a well or spring

Area of Jurisdiction **-** All unincorporated areas of Yuma County.

Arizona Revised Statutes (A.R.S.) **-** The revision and codification of the laws of the State of Arizona of a general or public nature adopted and enacted into law as "Arizona Revised Statutes***."***

Arterial **-** Street classification in which roads are designated as major carriers of traffic that usually have 4 to 6 traffic lanes. Access from private property is limited and controlled. Intersections are to other major roadway facilities and generally have traffic signals.

Best Management Practices (BMPs) **-** Management techniques verified by scientific research that are practical, economically feasible and effective in reducing PM_{10} particulate emissions.

Board (BOS) **-** Refers to the Yuma County Board of Supervisors. Composed of five elected members, the BOS plans and provides for the future growth and improvement of its area of jurisdiction through the adoption and enforcement of regulations, ordinances and plans.

Board of Adjustments (BOA) **-** A quasi-judicial board which hears zoning administration appeals and requests for variances.

Buffer Zones **-** An area of land separating two distinct land uses that acts to reduce or mitigate the effects or nuisances of one land use or the other.

Build-Out **-** Having no remaining land; fully developed to the maximum density permitted by adopted plans and zoning.

Capital Improvement Program (CIP) **-** A schedule and budget for the purchase or expansion of future capital improvements (land, land improvements, buildings, equipment, utilities and group purchases) to be carried out over a specified period of time.

GLOSSARY

Circulation Element **-** A required element of the comprehensive plan addressing the general location and extent of existing and proposed freeways, arterial and collector streets, bicycle routes and any other modes of transportation as may be appropriate.

Citizens Advisory Group (CAG) **-** A component of the Public Information/Public Participation Program. CAGs are composed of voluntary citizens who provide input into the development of the *Yuma County 2020 Comprehensive Plan*.

Cluster; Cluster Development **-** A development approach in which building lots may be reduced in size and buildings sited closer together, usually in groups or clusters, provided that the total development density does not exceed that which could be constructed on the site under conventional zoning and subdivision regulations. The additional land that remains undeveloped is then preserved as open space and recreational resource lands.

Collector **-** Street classification in which roads are carriers of local traffic which funnel vehicles from local roads to major and prime arterials. Typically they have two traffic lanes and provide direct access to properties.

Community Development **-**A process that involves activities in each of the following categories: recreational opportunities and open space, industrial development, commercial development, comprehensive planning, housing, urban renewal and the modernization of local government. If combined in the right proportions these activities will insure the balanced physical and social development of a community.

Comprehensive Plan **-** A statement of development goals, objectives and policies which may include maps, charts, graphs and text which set forth standards for local growth and development under the provisions of A.R.S. Comprehensive Plans are developed to provide guidance that will bring about the coordinated physical development in accordance with present and future needs.

Community Water System **-** A water system which supplies drinking water to 25 or more of the same people year-round in their residences.

Compliance **-** The act of meeting all local, state and federal regulations.

Conservation Easement **-** An easement granting a right or interest in real property that is appropriate to retaining land or water areas predominately in their natural, scenic, open or wooded condition; retaining such areas as suitable habitat for fish, plants or wildlife; or maintaining existing land uses.

Contaminant **-** Anything found in water (including microorganisms, minerals, chemicals, radionuclides, etc.) which may be harmful to human health.

Cost of Development Element **-** An element of the comprehensive plan that proposes means for new development to pay a fair share towards infrastructure cost (see ***Impact Fee).***

GLOSSARY

Critical (or sensitive) Areas - Includes wetlands, sensitive fish and wildlife, recharge for groundwater aquifers, flood prone and geological hazardous areas (such as landslide areas, earthquake fault zones and steep slopes).

Cultural Resource - A site or structure which is part of the area's heritage and typifies a particular stage of human activity in the area. Includes archeological, historic buildings and undisturbed natural sites that have historic or prehistoric associations including those with paleontological (fossil) specimens.

Density (Residential and Population) - For residential development, density means the number of housing units per acre. For population, density means the number of people per square mile.

Density Bonus - The allocation of development rights that allow a parcel to accommodate additional square footage or additional residential units beyond the maximum for which the parcel is zoned or designated. The provision or preservation of an amenity at the same site or at another location is usually provided in exchange.

Design Standards - A standard contained in a land use regulation which relates to design of a subdivision, site plan or structure.

Developer - An individual, partnership or corporation (or agent thereof) that undertakes development activities covered within the scope of a comprehensive plan and associated ordinances.

Development Agreement - A legal agreement between two parties (generally, a jurisdiction and a developer) that states the conditions that each will meet for a development project. The agreement may specify conditions necessary when development of the property occurs including consistency with the comprehensive plan. Infrastructure provision is commonly the emphasis of a development agreement.

Development Corridors - Identified areas with defined boundaries where development is prioritized and/or encouraged to occur based on infrastructure capacities and associated cost.

Development Criteria - Factors that are used to evaluate the readiness or potential of a specific residential, commercial or industrial parcel of land to be developed as it relates to the goals stated in the comprehensive plan.

Easement -A grant of one or more of the property rights by the property owner to and/or for the use by the public, a corporation, or another person or entity.

Economic Development - The process in which local governments or community-based organizations engage to stimulate or maintain business activity and/or employment. The goal is to stimulate local employment opportunities in sectors that improve the community, using existing human, natural and institutional resources.

Effluent - The water that has been collected in a sanitary sewer for subsequent treatment in a facility that is regulated pursuant to A.R.S. Title 49, Chapter 2. Such water remains effluent until it acquires the characteristics of groundwater or surface water.

GLOSSARY

Environmental Assessment **-** The procedure for analyzing the impacts of some proposed action on a given environment and the documentation of the analysis.

Environmental Element **-** An element of the Comprehensive plan containing the analysis to address anticipated effects, if any, of plan elements on air quality and natural resources associated with future development.

Environmental Impact Statement *(EIS)* **-** A detailed statement describing and analyzing the significant environmental effects of a project and discussing ways to mitigate or avoid the effects.

Equestrian Trail **-** A path or route that provides for the use of horses.

Farmland of Statewide or Local Importance **-** Land that is used for the production of food, feed, fiber, forage or oilseed crops as determined by the appropriate state or local government agency.

Flood Hazard Area **-** A lowland or relatively flat area adjoining inland waters that is subject to a one percent or greater chance of flooding in any given year. Also known as the 100-year floodplain and identified within the Yuma County Flood Plain Protection Ordinance.

Floodplain **-** The channel of the relatively flat area adjoining the channel of a natural stream or river that has been or may be covered by floodwater.

Floodway **-** The channel of a natural stream or river and portions of the floodplain adjoining the channel which are reasonably required to carry and discharge the floodwater or flood flow of any natural stream or river.

Goals **-** Defines a long or short-term end toward which county programming or activities are ultimately directed. They are abstract, not fully measurable and broadly address a desired outcome that supports the Yuma County 2020 Comprehensive Plan purpose.

Grazing Allotment **-** An area of private, state or federal land where one or more operators graze their livestock. An Allotment may include one or more separate pastures; livestock numbers and seasons of use are specified for each allotment.

Greenbelt **-** An open area that may be cultivated or maintained in a natural state surrounding development or used as a buffer between land uses or to mark the edge of an urban or developed area.

Growth Management **-** The use of a wide range of techniques to influence the location, timing, type, character and rate of development desired by a community.

Groundwater **-** Water under the earth's surface, often confined to aquifers capable of supplying wells and springs.

Growing Smarter Plus **-** legislation enacted to address growth related issues and preserve open space throughout the state.

GLOSSARY

Habitat Management Plan **-** A written and officially approved plan for a specific geographic area which identifies wildlife habitat and related conservation and/or preservation strategies.

Historic Trail **-** A route, path or trail that is associated with some historic event or era.

Household **-** All persons living in a dwelling unit, whether or not they are related.

Impact Fee **-** A fee imposed on a development to help finance the cost of improvements or services.

Implementation Measure **-** An action, procedure or technique that carries out comprehensive plan policy.

Incentive Zoning **-** The granting by the approving authority of additional development capacity in exchange for the developer's provision of a public benefit or amenity.

Infill **-** Development of vacant parcels within areas that are already largely developed.

Infrastructure **-** The facilities and services needed to support land development.

Infrastructure Service Area Boundary **-** A boundary beyond which there are limitations or prescribed conditions on publicly financed extensions of water, sewer and street improvements.

Intergovernmental Agreement; Inter-local Agreement **-** A contractual agreement between Yuma County and another governmental entity.

Issue **-** Something of concern. A problem or challenge stemming from past and present growth and development activities, policies, lack of funding, combination thereof or other comprehensive planning factors.

Key Informational Resource Interviews (KIRI) **-** A research technique for obtaining perspectives, input and solutions on growth related issues from area and regional managers, agency heads, private industry professionals and other civic leaders considered stakeholders in the community.

Land Use Element **-** A required element of a comprehensive plan that recommends how lands within a county's jurisdiction should be utilized. Utilization includes land use designations or planning for specific uses.

Level of Service (LOS) **-** A standard used by government agencies to measure the quality or effectiveness of a service.

Liquefaction **-** A process by which water-saturated granular soils transform from a solid to a liquid state during strong ground shaking events.

GLOSSARY

Major Amendment - A major amendment is an amendment to the Yuma County 2020 Comprehensive Plan (Plan) that represents a substantial alteration of the county's land use mixture or balance as established in the Plan's land use element for that area of the county. A major amendment shall be required for any proposed project that is a substantial change to the goals, objectives and policies of the Comprehensive Plan, the intent or direction of the Comprehensive Plan or represents a substantial alteration of the county's land use mixture and balance established by the Comprehensive Plan.

Manmade Hazard - Unpredictable act caused by human intervention which poses a threat to the health, safety and welfare of county residents. Inclusive of transportation accidents, chemical spills, fires, explosions, civil unrest and nuclear incidents.

Manufactured Home - A dwelling unit manufactured after June 15, 1976 which is fabricated either in whole or in large sections at a factory.

Manufactured Housing - Factory built, single family structure that meets the HUD Code standards; National Manufactured Home Construction and Safety Standards Act, HUD (US Department of Housing and Development) Code.

Minor Amendment - Any amendment that does not meet the criteria to be defined as a major amendment. A minor amendment may be heard in conjunction with a concurrent rezoning application.

Mixed-use Development - Developments designed to compliment and integrate a variety of uses (e.g., housing, commercial and/or offices in the same structure(s) or within close proximity of each other). These developments are intended to reduce dependency on the automobile and enhance a sense of community.

Multi-modal Transportation - A transportation system that includes several types (modes) of conveyances such as automobiles, rail, bus, car pooling, walking and bicycle.

Municipality - An incorporated city or town.

Natural Conditions - The condition existing prior to development, modification or disturbance.

Natural Hazard - Source of weather or geologically related danger which have a history of periodic occurrences and present a known threat. Inclusive of hurricanes, earthquakes, monsoons, tornadoes, flood prone areas, natural wildfires and unstable slopes.

Nonconforming Use - A use or activity that was lawful prior to the adoption, revision or amendment of the zoning ordinance but that fails by reason of such adoption, revision or amendment to conform to the present requirements of the zoning district.

Non-Point Source - Pollution consisting of constituents such as sediment, nutrients and organic and toxic substances from diffuse sources, such as runoff from agricultural and urban land development and use.

GLOSSARY

Objectives **-** Statements which are specific, attainable, measurable and support a means of achieving a goal.

Open Space **-** As defined by A.R.S. Title 11, Chapter 7, Article 2 §11-935.01 "...any space or area characterized by great natural scenic beauty or whose existing openness, natural condition or present state of use, if retained, would maintain or enhance the conservation of natural or scenic resources, or the production of food and fiber."

As defined by the *Growing Smarter Commission*, "Land that is suitable for public protection from development by virtue of some quality that is public good. This could be food, fiber, recreation, natural hazard or some rare geological, cultural or biological feature."

As defined by A.R.S. Title 37, Chapter 2, Article 4.2. (3) "land that is generally free of land uses that would jeopardize the conservation and open space values of the land or development that would obstruct the scenic beauty of the land."

Open Space and Recreational Resource Element- An element of the Comprehensive Plan to address the identification, dedication and location of open space and recreational resources.

Open Space Site **-** A tract of land in or near residential subdivisions, apartment complexes, manufactured home and recreational vehicle parks to meet the local recreational needs and desires of the residents. Such tracts shall include play areas, small parks, natural desert or areas of unusual scenic beauty.

Ordinance **-** A law or regulation set forth and adopted by a governmental authority.

Overlay Zone **-** A zoning district that encompasses one or more underlying zones and that imposes additional requirements above that required by the underlying zoning.

Park **-** A highly developed parcel of land that includes a variety of active (i.e., baseball/softball diamonds, court sports, etc.) and passive (i.e., seating areas, walking paths, etc.) recreational areas.

Performance Indicator **-** A measure establishing progress toward achieving a desired goal. Tabulated and reported on an annual basis in order to monitor the effectiveness of the *Yuma County 2020 Comprehensive Plan*.

Performance Indicator Element **-**An element of the comprehensive plan that establishes indicators to periodically measure and assess the overall effectiveness of the Yuma County 2020 Comprehensive Plan.

Planning Area **-** Assigned areas of the county used to delineate the accumulation of baseline data to define the different conditions, needs and issues that exist immediate to geography, economy, demographics, ethnicity and regional perspectives.

GLOSSARY

Planning and Zoning Commission (P&Z Commission) - Consists of ten residents from the county; two from each of five Supervisory Districts. Appointed to a four year term and serves in the following capacity: (a) review matters related to growth; (b) make recommendations concerning land use to the Board of Supervisors; (c) review and make recommendations on the Yuma County Capital Improvement Program.

PM_{10} – Particulate matter of 10 microns or less in diameter. A mix of solid particles and liquid droplets which are small enough to remain suspended in the air.

Public Information/Public Participation Program (PI/PP) - A program that supplements the public participation requirements of *Growing Smarter Plus* and the *Yuma County 2020 Comprehensive Plan*. The program guides efforts to educate and involve citizens in long range planning processes.

Policies and Priorities - An end toward which county activities are directed. Policies and priorities in the Comprehensive Plan are abstract, not fully measurable and broadly addresses an outcome identified in the Yuma County 2020 Comprehensive Plan. These Policies and priorities are dictated by Growing Smarter Legislation, staff and the citizens of Yuma County.

Point Source Pollution - Pollution that originates from an identifiable point.

Prime Agricultural Land - Land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed and other agricultural crops with minimum inputs. Prime farmland is land suitable for produce and melon crops located within the Yuma, Gila and Wellton Mohawk valleys.

Quality of Life - The personal perception of the physical, economic and emotional well-being that exists in a community or region.

Recreational Opportunity - Outdoor recreational activities which offer satisfaction in a particular physical or social setting. These activities are primarily hunting, fishing, wildlife viewing, photography, boating, biking, walking and camping.

Regional Coordination - Cooperative and productive interaction with agencies and organizations whose decisions and actions impact the health, safety and welfare of Yuma County residents.

Regulations - Guidelines for standardizing or promoting conformance.

Riparian Area - A geographically delineated area with distinct resource values that occurs within or adjacent to a natural perennial or intermittent stream channel or within or adjacent to a lake, pond or marsh bed maintained primarily by natural water sources.

Rural (unincorporated) - Land use and development which is characterized by low density residential**.** These areas typically receive limited public services.

Rural Conservation Development - A term describing the requirements of a rural cluster subdivision (see Cluster).

GLOSSARY

Rural Planning Area - See A.R.S. §11-806, (D)(3) "A boundary voluntarily created to aid the Planning Areas in providing a sound factual and policy basis for planning. Said boundary encourages development of non-regulatory incentives for compliance and accommodation of continuing traditional rural and agricultural enterprises."

Safety Element - An element of the Comprehensive Plan that identifies and assesses the various natural and human threats and presents actions that can be used to minimize or mitigate their adverse impact to the residents and property.

Sensitive Receptors - Sensitive noise receptors of concern are generally identified as residences, schools, libraries, hospitals and recreation areas.

Services - The business of supplying a commodity (as electricity or gas) or service (as transportation) to any or all members of a community.

Silvaculture - Silvaculture areas refers to lands adjacent to the Colorado and Gila River corridors. These lands are characterized by native riparian habitat types and wildlife species.

Species

Endangered: An animal or plant whose prospects of survival and reproduction are in immediate jeopardy.

Sensitive: A designation which is applied to species not yet officially listed but are under status review for proposed listing by the U.S. Fish and Wildlife Service.

Threatened: Any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Sprawl - Low density, automobile-dependent development beyond the edge of service and employment areas.

Special Use Permit - A use permitted in a particular zoning district only upon showing that such use in a specified location will comply with all the conditions and standards for the location or operation of such use as specified in a zoning ordinance and authorized by the approving authority.

State Trust Lands (Trust Lands) - Any land that is owned or held in trust by the State of Arizona with proceeds from sales or leasing to be used primarily for state education.

Subdivision Regulations - An ordinance regulating the design and improvement of parcels that are split from the original parcel.

Sustainability - Community use of resources in a way that does not jeopardize the ability of future generations to live and prosper.

Threat Assessment - Identifying the scope, impact and mitigation of natural and manmade hazards to aid in planning for minimizing adverse effects.

GLOSSARY

Transfer of Development Rights (TDR) - Removal of the right to develop or build (usually described in number of dwelling units per acre) from one property (the sending area) and transfer of the right to a suitable property (the receiving area), in order to preserve open space, agriculture land and/or natural resources on the first property. Also known as the "purchase of development rights."

Turbidity - The cloudy appearance of water caused by the presence of tiny particles.

Unique Farmland - Land other than Prime Farmland that is used for production of specific high-value food and fiber crops. It has the special combination of location, soil quality, growing season and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods.

Urban—Land development of higher density and intensity which is characterized by services of an urban nature (e.g., central water/sewer, paved road with curb and gutter).

Variance - A departure from any provision of the zoning requirements for a specific parcel without changing the zoning ordinance or the underlying zoning of the parcel. A variance usually is granted only upon demonstration of hardship based on the peculiarity of the property in relation to other properties in the same zoning district.

Viewshed - The landscape that can be directly seen under favorable atmospheric conditions from a viewpoint or along a transportation corridor.

Vision, Visioning - A process where a collaborative statement is developed by citizens, elected and appointed officials or interested parties for a particular community. This statement describes the ideas, desired direction and perceptions for how the community should utilize and focus its resources in terms of development.

Visual Corridor - Scenic, gateway or aesthetically pleasing routes that help define the character of Yuma County. A visual corridor can have a variety of characteristics but primarily provide vistas of nearby mountains or show important cultural resources or features.

Water Quality - The chemical, physical and biological characteristics of water with respect to its suitability for a particular use.

Water Resource Element - A required element of the Comprehensive Plan that addresses the availability of surface water, groundwater and effluent water supplies.

Watershed - A watershed is the entire region drained by a waterway that drains into a body of water.

Water Table - The upper limit of the soil or underlying rock material that is wholly saturated with water.

GLOSSARY

Well Protection Area - The area surrounding a drinking water well or well field which is protected to prevent contamination of the well(s).

Wetlands - Permanently wet or intermittently flooded areas where the watertable (fresh, saline or brackish) is at, near or above the soil surface for extended intervals; where hydric wet soil surface conditions are normally exhibited and where water depths do not exceed two meters.

Wilderness - An area formally designated by Congress as part of the National Wilderness Preservation System.

Withdrawal - An action that restricts the use of public lands.

Yuma Regional Development Plan - A common set of land use development policies for the future economic growth and development of lands within the incorporated and unincorporated areas in Yuma County.

Zoning - The delineation of districts and the establishment of regulations governing the use, placement, spacing and size of land and buildings.

Zoning District - Any portion of a county in which the same set of zoning regulations apply.

Zoning Ordinance - An ordinance adopted by the Board of Supervisors which contains zoning regulations together with necessary maps and/or descriptive data setting forth the precise boundaries of zoning districts within which the various zoning regulations are effective (see Ordinance).

Zoning Regulations - Provisions governing the use of land or buildings, or both; the height and location of buildings, the size of yards, courts and open space, the establishment of setback lines and such other matters as may otherwise be authorized within the enabling statutes and which the Board of Supervisors deems suitable and proper.

GLOSSARY

Glossary definitions were obtained from the following documents:

The New Illustrated Book of Development Definitions, **Center for Urban Policy Research, 1993; Moskowitz & Lindbloom;**

Principles and Practice of Urban Planning, **International City Manager's Association, 1968; Goodman & Freund;**

Planning Local Economic Development, **Glossary, Sage Publications, 1994;**

The Zoning Dictionary, **Lehman & Associates, 1999;**

Drinking Water Glossary, **http:www.water.epa.gov/drink/resources/glossary.cfm;**

Final Yuma District Resource Management Plan and Environmental Impact Statement, **Glossary, Bureau of Land Management, United States Department of Interior, 1985; and,** ***Soil Survey of Yuma-Wellton Area,*** **Glossary, United States Department of Agriculture, 1978**

Any terms not defined within this Glossary will be referred to and determined by the updated 2004 Arizona Department of Commerce Planning and Zoning Handbook.

15.5 Zoning Comparison Table

Comparison of Zoning

Land Use Designation	2000 Total Acres	2011 Total Acres
RA-40 - Rural Area - 40 acre minimum parcels	659,929	704,051
RA-20 - Rural Area - 20 acre minimum parcels	330,766	253,045
RA-10 - Rural Area - 10 acre minimum parcels	28,198	54,399
RA-5 - Rural Area - 5 acre minimum parcels	1,697	2,092
SR-4 - Suburban Ranch - 4 acre minimum parcels	124	151
SR-3 - Suburban Ranch - 3 acre minimum parcels	126	179
SR-2 - Suburban Ranch - 2 acre minimum parcels	3,187	3,291
SR-1 - Suburban Ranch - 1 acre minimum parcels	2,212	2,295
SSB-20 - Suburban Site Built - 20 acre minimum parcels	-	0
SSB-10 - Suburban Site Built - 10 acre minimum parcels	-	0
SSB-5 - Suburban Site Built - 5 acre minimum parcels	65	390
SSB-4 - Suburban Site Built - 4 acre minimum parcels	0	106
SSB-3 - Suburban Site Built - 3 acre minimum parcels	3	57
SSB-2 - Suburban Site Built - 2 acre minimum parcels	562	2,273
SSB-1 - Suburban Site Built - 1 acre minimum parcels	11	132
R-1-40 - Low Density Residential - 40,000 sq. ft. minimum parcels	2,793	3,196
R-1-20 - Low Density Residential - 20,000 sq. ft. minimum parcels	624	648
R-1-15 - Low Density Residential - 15,000 sq. ft. minimum parcels	-	0
R-1-12 - Low Density Residential - 12,000 sq. ft. minimum parcels	149	316
R-1-8 - Low Density Residential - 8,000 sq. ft. minimum parcels	230	382
R-1-6 - Low Density Residential - 6,000 sq. ft. minimum parcels	1,583	1,326
R-2 - Medium Density Residential - 4,000 sq. ft. minimum parcels	285	418
R-3 - High Density Residential - 4,000 sq. ft. minimum parcels	120	88
MHS-20 - Manufactured Home Subdivision - 20,000 sq. ft. minimum parcels	218	293
MHS-15 - Manufactured Home Subdivision - 15,000 sq. ft. minimum parcels	-	0
MHS-12 - Manufactured Home Subdivision - 12,000 sq. ft. minimum parcels	-	1
MHS-10 - Manufactured Home Subdivision - 10,000 sq. ft. minimum parcels	340	310

Comparison of Zoning Continued

Land Use Designation	2000 Total Acres	2011 Total Acres
MHS-8 - Manufactured Home Subdivision - 8,000 sq. ft. minimum parcels	-	.63
MHS-6 - Manufactured Home Subdivision - 6,000 sq. ft. minimum parcels	-	1
MHS-4.5 - Manufactured Home Subdivision - 4,500 sq. ft. minimum parcels	1,434	731
MHP - Manufactured Home Park - 3,200 sq. ft. minimum parcels	618	636
RVS - Recreational Vehicle Subdivision - 3,200 sq. ft. minimum parcels	3,189	4,209
RVP - Recreational Vehicle Park - 1,200 sq. ft. minimum parcels	1,238	1,170
RC - Residential Commercial	-	.28
C-1 - Local Commercial	627	514
C-2 - General Commercial	2,067	2,017
LI-8,000 - Light Industrial-8,000 square foot minimum	4,424	4,350
LI-20,000 - Light Industrial-20,000 square foot minimum	-	0
LI-1 - Light Industrial-1 acre minimum	-	7
LI-2 - Light Industrial-2 acre minimum	-	31
LI-5 - Light Industrial-5 acre minimum	-	25
HI-8,000 - Heavy Industrial-8,000 square foot minimum	6,410	8,897
HI-20,000 - Heavy Industrial-20,000 square foot minimum	-	0
HI-1 - Heavy Industrial-1 acre minimum	-	10
HI-2 - Heavy Industrial-2 acre minimum	-	2
HI-5 - Heavy Industrial-5 acre minimum	-	71
II - Intensive Industrial	0	162
PD - Planned Development	0	1,035
PF - Public Facilities	-	0
AD - Airport District	-	0
SA/RL - Sensitive Areas and Resource Land District	-	0
TCU - Transportation, Communications and Utilities District	-	7
VCO - Visual Corridor Overlay District	-	0
OS/RR – Open Space, Recreation and Resource Zoning District	-	0